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Houston, Texas

MISCELLANEOUS REPORTS OF INVESTIGATIONS
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Versar, Inc.
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MANAGEMENT SUMMARY

This report documents the removal of individuals buried within Campbell's Bayou Cemetery (41GV171) to avoid potential impact to the remains during implementation of remediation activities at the Malone Service Company Superfund Site (Site) in Texas City, TX. An oil recovery and waste processing facility had operated at the Site for more than 30 years, ending in the mid-1990s. The facility had stored, processed, and disposed of industrial solid wastes and hazardous wastes. In July 2012, a group of companies known as the Malone Cooperating Parties (MCP) entered into a Consent Decree with the U.S. Government, the U.S. Environmental Protection Agency, and the State of Texas to implement a remedial design and remedial action at the Site. It was determined that if the remains in the cemetery were not relocated, there was the potential that remediation activities could impact the cemetery. Archival research, review of historic maps and aerial photographs, and reconnaissance survey revealed the extent of potential remains at the cemetery, and, given the location of the cemetery and the scope of the planned remediation activities, it was deemed impractical for the environmental remediation contractors to work around the cemetery. (41GV171). The MCP consulted with EPA, Campbell family descendants, the Galveston County Historical Commission, and the Texas Historical Commission and developed a plan to relocate the remains to a perpetual care cemetery in accordance with Texas state law and associated rules and procedures.

In accordance with Texas Health and Safety Code §711.004, the landowner Land Navigator, Ltd., on behalf of the MCP, petitioned the Galveston County Judicial District Court for removal of the dedication of the cemetery and the transfer of the human remains to the perpetual care cemetery operated by Forest Park East Funeral Home and Cemetery (FPE), 21620 Gulf Freeway, Webster, TX 77598. On February 11, 2014, Land Navigator was granted a Summary Judgment allowing Land Navigator to disinter and relocate the remains to FPE.

Versar, Inc. (formerly Geo-Marine, Inc.), on behalf of the MCP, provided all archeological and human osteological expertise for the disinterment and analysis of the human remains. Disinterment permits from the State Registrar of the Vital Statistics Unit of the Department of State Health Services, as required by Texas Administrative Code, Title 13, Chapter 22 (Texas Historical Commission, Cemeteries), were obtained for each burial.

The disinterment excavations at Campbell's Bayou Cemetery revealed 34 burials from which 35 individuals were excavated. No graves were marked by headstones. It is the professional judgment of Versar that, of the 35 individual sets of remains identified, 11 were determined to be adults (5 male and 3 female; 3 of indeterminate sex), and 24 were determined to be children. The majority of children at Campbell's Bayou Cemetery (n=18) are under 5 years of age and six are premature infants aged 30–40 weeks.

Burials could not be associated conclusively with any individuals identified by the descendants; however, the combination of bioarcheological analysis, coffin hardware analysis, census data, and descendant identifications resulted in a list of individuals that may have been interred in certain graves. Some of the interments include James and Mary Campbell, Charlie Meyers, Benjamin Ninnie Dick, Phoebe Rutlage, and Shelby McNeil, Jr. Children were difficult to identify; however, there is good potential the graves of Frank Campbell, Mary Jane Campbell, Charles Munson, and Grace Dick were identified. Data are conclusive that the children Levi and Joseph (Joe) Parr were both interred together in Burial 6, the concrete crypt with brick covering. Grace Dick was the last individual interred at the cemetery in 1904.

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SECTION 1
INTRODUCTION

This report documents the removal of individuals buried in Campbell's Bayou Cemetery (41GV171) to avoid potential impact to the remains during implementation of remediation activities at the Malone Service Company Superfund Site (Site) in Texas City, Texas. An oil recovery and waste processing facility had operated at the Site for more than 30 years, ending in the mid-1990s. The facility was used to store, process, and dispose of industrial solid wastes and hazardous wastes. In July 2012, a group of companies known as the Malone Cooperating Parties (MCP) entered into a Consent Decree with the U.S. Government, the U.S. Environmental Protection Agency, and the State of Texas to implement a remedial design and remedial action at the Site. It was determined that if the remains in the cemetery were not relocated, there was the potential that remediation activities could impact the cemetery. Archival research, review of historic maps and aerial photographs, and reconnaissance survey revealed the extent of potential remains at the cemetery, and, given the location of the cemetery and the scope of the planned remediation activities, it was deemed impractical for the environmental remediation contractors to work around the cemetery. The MCP consulted with EPA, Campbell family descendants, the Galveston County Historical Commission, and the Texas Historical Commission and developed a plan to relocate the remains to a perpetual care cemetery in accordance with Texas state law and associated rules and procedures.

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Versar, Inc. (formerly Geo-Marine, Inc.), provided all archeological and human osteological expertise for the disinterment and analysis of the human remains. All activities were directed by Versar, Inc., staff members: Mr. Duane E. Peter, Principal Investigator; Dr. Michelle Wurtz, Project Coordinator; Dr. Catrina Whitley, Senior Bioarcheologist; and Mrs. Lindsey Skelton, Ms. Natasha Nelson, and Mr. Brett Lang, Osteologists. The subsurface of the cemetery area was examined to a depth of 6 feet to determine the presence of any burials (Figure 1). In addition, the subsurface of an area to the north of the fenced cemetery was examined to a depth of 6 feet to determine whether folklore concerning the burial of Confederate soldiers in that location was accurate; no burials were found there. Excavated human remains and artifactual materials were removed, analyzed on site, and photographed. All human remains and associated artifacts will be reinterred at FPE.

Disinterment permits were obtained for each burial from the State Registrar of the Vital Statistics Unit of the Department of State Health Services as required by Texas Administrative Code, Title 13, Chapter 22 (Texas Historical Commission, Cemeteries) (Appendix B). The archeological team maintained a detailed record of all human remains and associated funerary objects removed. This documentation will be maintained by the caretaker of the FPE cemetery and the Galveston County Historical Commission. Exposure of the graves was initiated on April 7, 2014, and all disinterments and on-site analyses were completed by May 15, 2014.

The disinterment excavations at Campbell's Bayou Cemetery revealed 34 burials from which 35 individuals were excavated. The disinterment process was a joint effort of individuals from Project Navigator Ltd., Versar, Inc., and ENTACT, Inc. Equally important was the presence of Campbell family members who visited and brought valuable information to the project. The authors gratefully acknowledge the contributions of Mrs. Renee Hillman, Mr. Don Dick, Mr. Charlie Gordy, Mrs. Shirley Phillips, Ms. Amy Phillips, Mr. James Phillips and Ms. Barbara Kirsten.

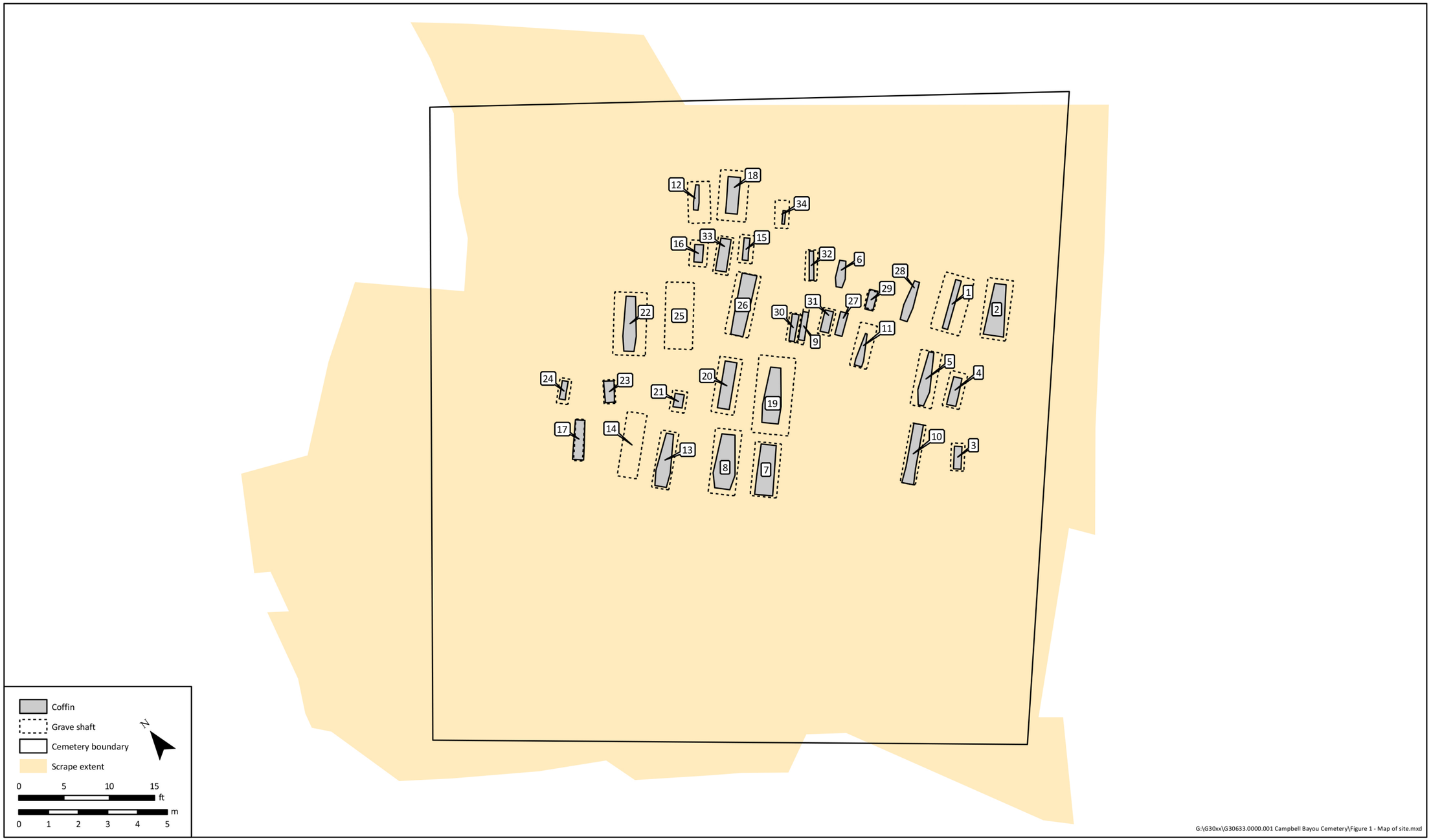


Figure 1. Locations of burials revealed by scraping within Campbell's Bayou Cemetery.

SECTION 2
ENVIRONMENTAL AND CULTURAL BACKGROUND

Campbell's Bayou Cemetery is located in Texas City, Texas (Figures 2 and 3). The cemetery is situated near Virginia Point, the nearest mainland feature to Galveston Island. The Site overlooks Swan Lake to the north. The cemetery is on a low ridge between Swan Lake and Galveston Bay to the east.

GEOLOGY

The Texas Bureau of Economic Geology has mapped Campbell's Bayou Cemetery in the Pleistocene-age Beaumont formation, with a stippled overlay that indicates that the area is "[d]ominantly clay and mud of low permeability, high water-holding capacity, high compressibility, high to very high shrink-swell potential, poor drainage, level to depressed relief, low shear strength, and high plasticity; geological units include interdistributary muds, abandoned channel-fill muds, and overbank fluvial muds" (Geological Atlas of Texas 1982:np). The Beaumont formation formed primarily on stream channels, point bars, natural levees, and backswamps, and to a lesser degree in coastal marshes and mud-flat deposits. The surface of the Beaumont formation is characterized by abandoned stream channels, pimple mounds on meander belt ridges, and low, relatively smooth areas that formed in backswamps (Bureau of Economic Geology 2011). Efforts to date the Beaumont Formation have shown that it is at least 35,000 years old (Tinsley 2010:9–10).

The U.S. Department of Agriculture, Soil Conservation Service (SCS), has mapped three soil map units within the Malone Superfund Site: Ijam clay, 0 to 2 percent slopes; Ijam-Urban land complex; and Narta fine sandy loam (Crenwelge et al. 1988). Ijam clay, 0 to 2 percent slopes, occupies only a very small part of the project area in the southwestern corner and seems to correspond with a landfill area. It is a nearly level to gently sloping, clayey soil that forms in dredged materials and is therefore somewhat higher in elevation than the surrounding marshlands. The representative soil profile begins with dark grayish brown clay approximately 25 centimeters (cm; 10 inches [in]) thick. The underlying C horizon consists of dark gray clay from 25 to 89 cm (10–35 in) below surface, gray clay with a few sand strata from 89 to 142 cm (35–56 in) below surface, and bluish gray sand with a few strata of sandy clay loam and oyster fragments from 142 to 155 cm (56–61 in) below surface. The SCS designated the bluish gray sand as a buried (2C) deposit (Crenwelge et al. 1988:21, 85–86).

Ijam-Urban land complex coincides with the heavily developed portion of the project area. The complex is composed of 40 to 60 percent Ijam soil with Urban land occupying the remainder. The Ijam portion of the map unit exhibits a profile similar to that described above. The Urban portion of the map unit consists of areas too heavily altered or obscured by construction to determine the soil origin (Crenwelge 1988:22).

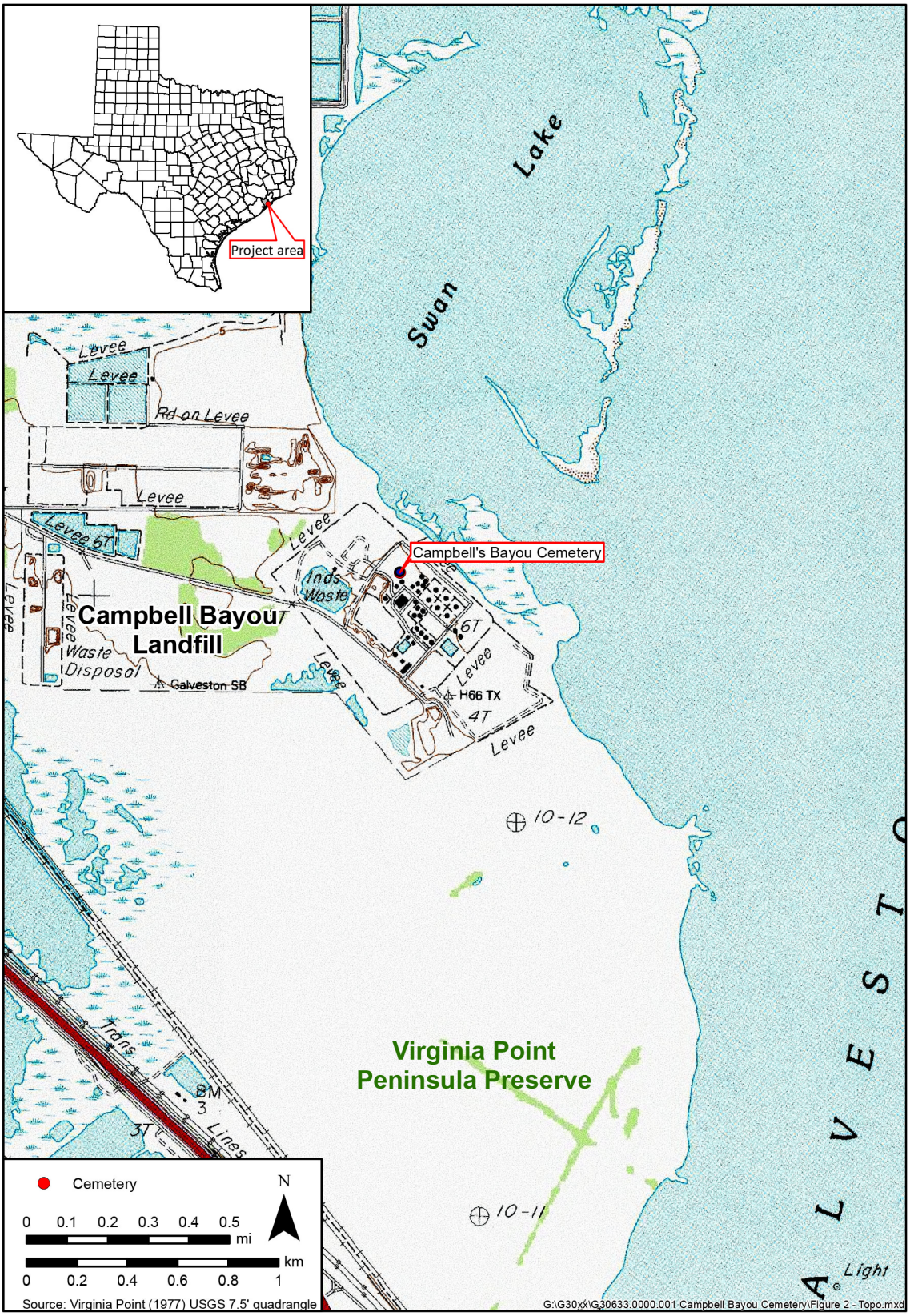


Figure 2. Topographic map showing the location of Campbell's Bayou Cemetery in Galveston County, Texas.

Figure 3. Aerial imagery showing Campbell's Bayou Cemetery.

Narta fine sandy loam, the dominant soil within the project area, is a nearly level and poorly drained upland soil that borders the coastal marsh. The solum for Narta series soils varies from 100 to 152 cm (30–60 in) thick. The typical soil profile begins with a dark gray fine sandy loam A horizon about 23 cm (9 in) thick. The underlying B horizon is very dark gray clay from 23 to 36 cm (9–14 in), gray clay from 36 to 97 cm (14–38 in), and light gray clay from 97 to 152 cm (38–60 in) below surface. Mottling in the B horizon is brown or yellow in color and varies from nonexistent to common in frequency (Crenwelge et al. 1988:40, 91).

ENVIRONMENT

Texas Parks and Wildlife Department (TPWD) has mapped the project area as Urban land (McMahon et al. 1984); however, adjoining areas in a similar environmental context are mapped in the Marsh/Barrier Island ecotone. TPWD further subdivided this ecotone into four subtypes—Maidencane-Alligator Weed (fresh) Marsh; Marshay Cordgrass-Olneyi Three-Square-Leafy Three-Square (brackish) Marsh; Smooth Cordgrass-Marsh Saltgrass-Sea Ox-eye (saline) Marsh; and Seaoats-Seacoast Bluestem Grassland—but the level of mapping does not distinguish among these subtypes. More recent ecological mapping was undertaken by the Environmental Protection Agency (EPA 2004) that placed the project area in the North Humid Gulf Coastal Plain ecotone. The original vegetation was primarily grasslands containing little bluestem, yellow Indiangrass, brownseed paspalum, gulf muhly, and switchgrass. Occasional small areas of oaks, called oak mottes, were present. However, Chinese tallow trees and Chinese privet now occupy large portions of the ecotone. Riparian forests contain water oak, pecan, southern live oak, American elm, cedar elm, and sugar hackberry. Canebrakes were sometimes found along creeks and rivers. Historically, bison, pronghorn, and whitetail deer were present within the North Humid Gulf Coastal Plain, although in smaller numbers than in the adjacent prairies to the north and west, and red wolf was present in the riparian forests. Even today, birds and waterfowl are still relatively abundant (Griffith et al. 2007). Fish and shellfish would also have been plentiful near the project area.

SECTION 3
HISTORICAL BACKGROUND

HISTORY OF JAMES CAMPBELL

By most accounts, James Campbell, after whom the cemetery is named, was born in 1791 (although Mary Campbell's memoirs place his birth at 1786) in Derry, Ireland, and moved to the United States shortly thereafter (Block 1991). After settling in Baltimore, he reportedly enlisted in the U.S. Navy and served aboard the *USS Constitution* as a sail maker during the War of 1812 (Block 1991). Campbell took part in several important battles, including serving as a gunner during the Battle of Lake Erie. After his naval enlistment ended, reports indicated Campbell joined a Spanish ship, the *Coujalado*, and was one of four sailors who survived an attack by Captain Rapp, a notorious English privateer (Tumlinson 1969). After being put ashore at Galveston Island, Campbell sailed to New Orleans where he met and joined buccaneer Jean Lafitte. Lafitte and his older brother were well-known for their privateering operations in New Orleans and Galveston, then called Campeche, or Campeachy (*Handbook of Texas* 2008a). During a later privateering operation in 1816, Campbell stopped at Crow's Ferry, at the mouth of the Sabine River near what is now Orange, Texas, and courted and married Mary Sabinal Crow (Block 1991). The two were married in a bonding ceremony conducted by the local Karankawa Indians. After a failed attempt to settle down and farm the land, James moved his wife to Galveston Island and again began working for Lafitte. Campbell soon rose in rank, and by 1818 he became commander of his first ship, the *Concord* (Block 1991). Campbell proved adept at capturing Spanish ships and was also instrumental in managing Lafitte's legal and financial operations. He remained one of Lafitte's most trusted lieutenants until 1821.

The year 1821 marked the end of the buccaneering days on Galveston Island. The president of the United States sent orders for the pirates to leave the island, and by April of that year, Galveston Island was abandoned (Block 1991). Although Lafitte urged James and Mary Campbell to accompany him, the two instead sailed to New Orleans for supplies and then returned to Texas. They relocated several times before settling at Galveston Bay near Swan Lake, on Campbell's Bayou in 1838 (Block 1991). James Campbell farmed and raised livestock at the site until his death in May of 1856. Although no records of his interment exist, according to various newspaper articles and family histories, he is buried, along with his wife, who died in 1884, at Campbell's Bayou Cemetery (Texas City Ancestry Searchers 1978, 1986).

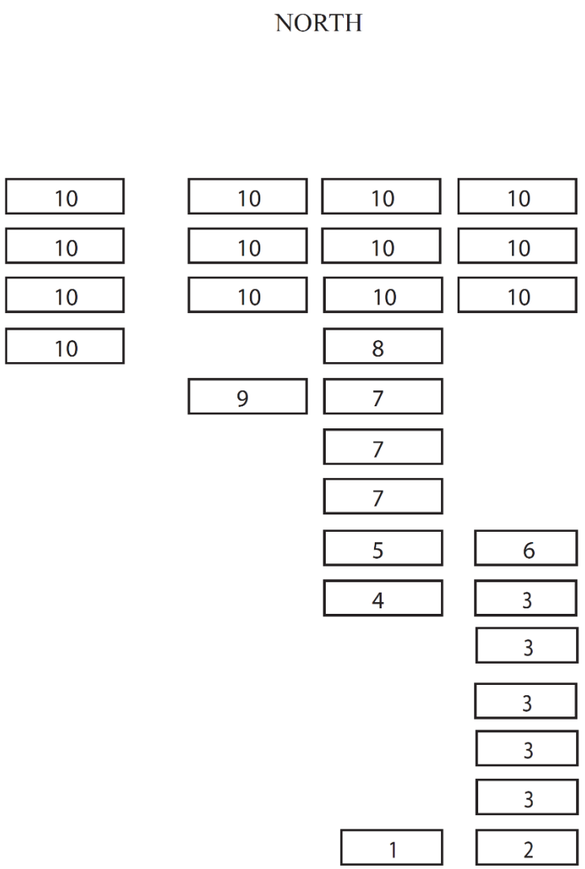
History of Campbell's Bayou and Campbell's Bayou Cemetery

Located several miles south of what is now Texas City, Texas, Campbell's Bayou was established in the late 1830s when privateer and buccaneer James Campbell and his wife permanently relocated to the area. With the help of local Karankawa Indians, the Campbells began to farm the land and create a sustainable community. Goods could be traded between the mainland and Galveston, or to passing ships, and these opportunities soon attracted other settlers (Hamilton 2010). This influx of people eventually led to the departure of the Karankawa Indians.

Campbell's Bayou gained significance at that time for reasons other than James Campbell's influence. Men from the settlement joined the Confederate Army during the Civil War, and the bayou became home to 5,000 soldiers who camped there while waiting to attack Union forces in Galveston (Warren 2010). Railroads infiltrated the area, and in 1859 the Houston and Henderson Railroad Company built a wooden trestle connecting Galveston Island with the mainland. Other bridges followed, but all were destroyed by an unnamed hurricane in 1910. The causeway that exists today was completed in 1912 (Hamilton 2010). Many of those remaining in Campbell's Bayou moved inland when the 1900 hurricane hit Galveston. The hurricane destroyed much of the community, including the Campbell homestead (Darst 1990; Warren 2010). A second hurricane in 1915 destroyed all remnants of the settlement (Warren 2010). Located adjacent to the Campbell home site, Campbell's Bayou Cemetery site 41GV171 and archeological sites 41GV113–41GB116 are the only surviving features of the settlement today.

The lack of existing headstones and conflicting sources makes it difficult to determine the exact date of the first interment at Campbell's Bayou Cemetery. One source claims that the first burial at the site was a young girl who died on the Campbell's land, shortly after the Campbells settled in the Swan Lake area in 1838. Several other documents posit that the death of the girl occurred during the early 1860s, at the height of the Civil War and at least five years after the death of James Campbell (Hauch et al. 2007). Though such an incident may have occurred, it is unlikely this incident was the beginning of Campbell's Bayou Cemetery. With the family residing at Virginia Point from the 1830s, and since two of the Campbell's children and James Campbell died before the 1860s, such a scenario is implausible. The first interments at Campbell's Bayou Cemetery should range between 1838 and James Campbell's death in 1856 (Anonymous 1856; Hauch et al. 2007). At least 30 other individuals were reportedly buried on this plot of land (Texas City Ancestry Searchers 1978, 1986). According to a newspaper article published in the *Texas City Sun* (Gilletine 1990), these burials include Campbell and Parr family members as well as 12 unnamed Confederate Civil War soldiers. However, no official burial records associated with the Confederate soldiers could be located to corroborate the article. Potential names and burial locations of those buried at Campbell's Bayou Cemetery are shown on Figure 4 (Hamilton n.d.). The last known burial at the cemetery occurred in 1904 (Ancestry.com 2007). Hurricanes in 1900 and 1915 destroyed almost all traces of the original cemetery. Descendants re-created the surface of the cemetery by placing temporary markers at potential grave locations.

Archival research conducted at the Galveston County Clerk's office revealed that the Campbell tract was originally conveyed to Samuel Bundick in 1832 by the Government of Mexico in a Mexican Land Grant (Galveston County Clerk [GCC], Galveston, Texas, 1832:Deed Book [DB] unknown). It is presumed that James Campbell took ownership of the property in the late 1830s; however, no deed record of this transaction exists. After James Campbell's death, the property was passed to his wife, Mary, in 1858. Mary Campbell held the property until 1879, when the land was deeded to her two grandchildren, Rebecca Campbell and Charles Campbell (GCC 1879:DB unknown:65–67). Rebecca Campbell married J. H. Atkins during the late 1800s, and the Atkins sold the land to E. L. Dick in 1897 (GCC 1897:DB 149:179). At some point, E. L. Dick sold the property to Walter and Mabel Wetzel who sold the land to Paul and Ruby Malone in 1964 (GCC n.d.:DB 821:15; GCC 1965:DB 1729:551–552). The Malone Company ceased operations in 1997 when its operating permits were revoked. The Malone Company subsequently entered Chapter 7 bankruptcy in 1998. The property was auctioned by the Federal Bankruptcy Court in 1999 and was awarded to Southeast Texas Environmental. The site was subsequently acquired by Regor Corporation in 2001. In 2009, the property was acquired by Land Navigator, Ltd. (N.A. 2009).



1. Minny Dick
2. Lee and Mabel Dick's twin baby girl
3. Warren and Sallie Campbell's little girl, Charlotte
3. Warren and Sallie Campbell's adopted baby, Joseph
3. Willie and Lilia Parr's little baby
3. Joe and Josephine Gordy's little girl
3. Baby grandchild of Jim & Mary's
4. Charlie Meyers, and old sailor
5. Jim Campbell
6. Mary Campbell
7. Mr. McNeil, from Bolivar
7. Shelby McNeil, a son
7. Reynold McNeil, a son
8. Mrs. Armstrong, Mrs. McNeil's mother
9. Mrs. Phoebe Rutledge
10. Mr. Johnson and some soldiers – Confederate

Additional names, but location of graves unknown:
Henry and Sally Campbell, twins of Jim and Mary
Charlie Munson, son of Thad and Julia Munson
Caroline Diane Westerlage, baby of Charles and Jennie Westerlage
Two strange babies died during Civil War
Wesley Gordy, son of John and Melina Gordy
Little girl Gordy, of John and Melina Gordy
Eva Gordy, baby of Jim and Bella Gordy
Cabet Young
Grace Dick, baby of Jeff and Laura Dick
Dianne Campbell Parr's children:
Frank, 5 yrs old
Joseph, just after birth
Mamie, 5 yrs old
Jameson, 10 or 12 yrs. old
Rebecca Mary, 6 mos.
"Uncle" George Young, a friend, the first to be buried in cemetery
"Little Stranger", child died while family traveling through
Lottie Campbell, daughter of Warren & Sallie Campbell

Figure 4. Potential names and burial locations at Campbell's Bayou Cemetery (source: Hamilton n.d.).

Prior to the disinterment, Campbell's Bayou Cemetery (site 41GV171) was 70 feet wide and 70 feet long, and was surrounded by chain link fencing (Gillentine 1990) (Figures 5 and 6). The primary entrance was constructed in the 1960s and consists of a double chain link gate under a galvanized decorative sign supported by two brick columns. The arched sign displays the name of the cemetery along with three symmetrically placed five-pointed flowers and a vine. Other design features included numerous temporary replacement headstones consisting of concrete blocks, concrete slabs, and unmortared brick. These headstones have not been marked and are often topped with small ceramic, metal, and stone trinkets. Many of the blocks had been placed on top of other larger blocks, and a concrete cross, lying flat at ground level, denotes this cemetery as a Christian burial ground. All of the temporary markers appeared to be facing east; however, the locations of the modern headstones had no correlation with the locations of the actual burials at the site (Figures 7–9). The current headstones are modern and likely were placed there relatively recently by a descendant or descendants. Only one remnant of the historic material of the cemetery remained; the base of a headstone located at the southeast side of the site. The base consisted of a broken marble marker set in concrete, and the marker was broken off at the top of the base (Figure 10). The marble section of the marker was missing from the cemetery site.

Figure 5. View of cemetery gate, facing southwest.

Figure 6. View of cemetery, facing northwest.

Figure 7. View of temporary markers.

Figure 8. View of temporary markers.

Figure 9. View of temporary markers, blocks placed on top of larger blocks.

Figure 10. View of base of only remaining historic headstone.

SECTION 4
METHODOLOGY

DISINTERMENT PERMITS

Relocation of the graves at Campbell's Bayou Cemetery was regulated by Chapter 711 (Sections 711.004, 711.010 and 711.011) of the Texas Health and Safety Code. The process required identification of the next of kin and their written consent to move the cemetery. Next of kin can include the decedent's surviving spouse, adult children, parents, siblings, or an adult person in the next degree of kinship in the order named by law to inherit the estate of the decedent. Once permission was obtained from the descendants who could be located, a petition was filed with the district court for an order to remove the cemetery dedication and to relocate the remains. The Texas Historic Commission and Galveston County Historical Commission were notified of the petition filing. After the Court approved the petition, Disinterment Permits were obtained from Texas Vital Statistics.

The lack of headstones or surficial indications of who is buried in the cemetery precluded the ability to obtain individual specific burial disinterment permits. Instead, general disinterment permits were given with the decedent's name listed as "Unknown Burial #1," with subsequent permits occurring to "Unknown Burial #34" (Appendix A). These numbers correlate with the burial numbers on the excavation and osteology forms. Burial numbers were assigned as the remains were encountered and reflect the progress of the scraping (Figure 11). These burial numbers also correlate with the Disinterment Permits as the number on the permit was assigned to each burial as it was discovered. Some numbers do not follow the scraping pattern because of several false stains. These numbers were reassigned to avoid confusion with the Disinterment Permits and prevent a permit being issued for a grave that did not exist.

GRAVE SEARCH

In August 2013, ground-penetrating radar and an electromagnetic induction meter were used to locate potential anomalies that possibly represented burials. Ten anomalies were identified within the concrete boundary of the defined cemetery (Hunt et al. 2013). No anomalies were identified outside the defined cemetery boundary. Previous disturbances can affect the ability of GPR to detect these anomalies. The use of GPR to identify graves can be fraught with difficulties and accuracy may be hindered due to soil conditions, thus making identification of burial shafts difficult. Ground-truth excavations typically performed to calibrate GPR anomalies could not be performed at the time of the survey. The geophysical interpretation therefore relied on the GPR and EM survey data alone to outline potential graves in the area and ground-truth excavations had to be deferred until the various regulatory approvals could be obtained for the grave excavation. The GPR survey was augmented with historical aerial photo and topographic map analysis that evaluated terrain, vegetation and soil patterns, fences, structures, excavations and industrial activity in the cemetery area. This work established the cemetery had been present from the 1930s with no obvious signs of other burials in the area.

Since the cemetery had to be moved, the search for graves at Campbell's Bayou Cemetery used mechanical stripping to visually identify the grave shafts and ground-truth the anomalies. Mechanical stripping involves the use of excavators and heavy equipment to remove vegetation and soil in a controlled manner to expose grave shafts. Visual inspection is the most certain method for locating graves. Given the size of the area (4,900 square feet) needing to be scraped (see Figure 11), mechanical excavation was necessary.

From April 7 to May 15 2014, grave identification and excavation were conducted at Campbell's Bayou Cemetery. Concrete slabs resembling sidewalks bounded the cemetery at the entrance on the east side. A concrete slab associated with the Malone facility but detached from the cemetery was present south of the cemetery boundary. A fence surrounded the cemetery which was anchored within a concrete curbing or footing. Brick gate posts and a small metal swing gate marked the entrance. Numerous grave decorations had been previously placed on the graves but were not specifically related to the locations of buried remains. These decorations included glass bottles, ceramic ginger beer bottles, figurines, and vases. Families had also placed small concrete stones to mark suspected locations of graves (see Figures 7–9). These recent grave items were collected, catalogued, and subsequently returned to the original location of the cemetery at the Site.

Success of mechanical scraping is dependent upon the skill level of the backhoe operator. Scraping smooth, even cuts of sediment requires the excavator to make continuous adjustments. The operators using the equipment were highly skilled and able to make the necessary cuts and remove extremely small amounts of sediment when necessary.

In preparation for the excavation of the cemetery, heavy mechanical equipment (backhoe excavator) was used to remove the trees and fencing and to prepare the surrounding area for stockpiled soil. Following preparation of the area, workers began soil removal. Workers removed the sediments from the cemetery surface in thin horizontal scrapes using a 4-foot-wide, smooth-edged blade on the excavator.

When scraping was initiated, field crew members were unsure whether grave shafts would be visible before encountering remains. Historic graves vary in depth because grave shaft size, water table level, bedrock, hard soil, season, etc., can affect the depth of each grave. Scraping proceeded cautiously throughout the project to ensure no burials were destroyed. Investigations began in the northeast corner of the cemetery removing sediments within an area of approximately 30 feet by 15 feet. Scraping continued in this area until the water table was encountered at about 4.5 feet. Excavations moved to the southwest and the first two burials were encountered. These grave shafts were evident at the boundary between the very dark gray clay and the brown loam clay, at approximately 3.5 feet. Mr. Duane Peter initially directed the scraping activities, moving in a clockwise direction exposing Burials 1 and 2 first, moving southwest to expose Burials 3, 4, 5, and 10 (see Figure 11). He then directed the crew to scrape the southwestern half of the cemetery, to the edge of Burial 16, exposing the southwestern edge of the burial container. Dr. Whitley continued directing scraping activities for the course of the excavations with the backhoe situated along the northeastern concrete border, parallel to the grave shafts (Figure 12). Unlike those exposed during Mr. Peter's monitoring, most of the remaining graves were shallow. Burials 30, 31, 9, and 27 were closely stacked together. Burial 9 was first encountered and had to be excavated before the concrete vault (Burial 6) could be removed. Burials 30 and 31 were encountered after two passes with the bucket. Once identified, an attempt to remove the concrete vault by scraping away the sediments northwest of the crypt resulted in the exposure of Burial 27. No burials were located under Burial 6. At Burial 22, a large square of disturbed sediment consistent with a grave

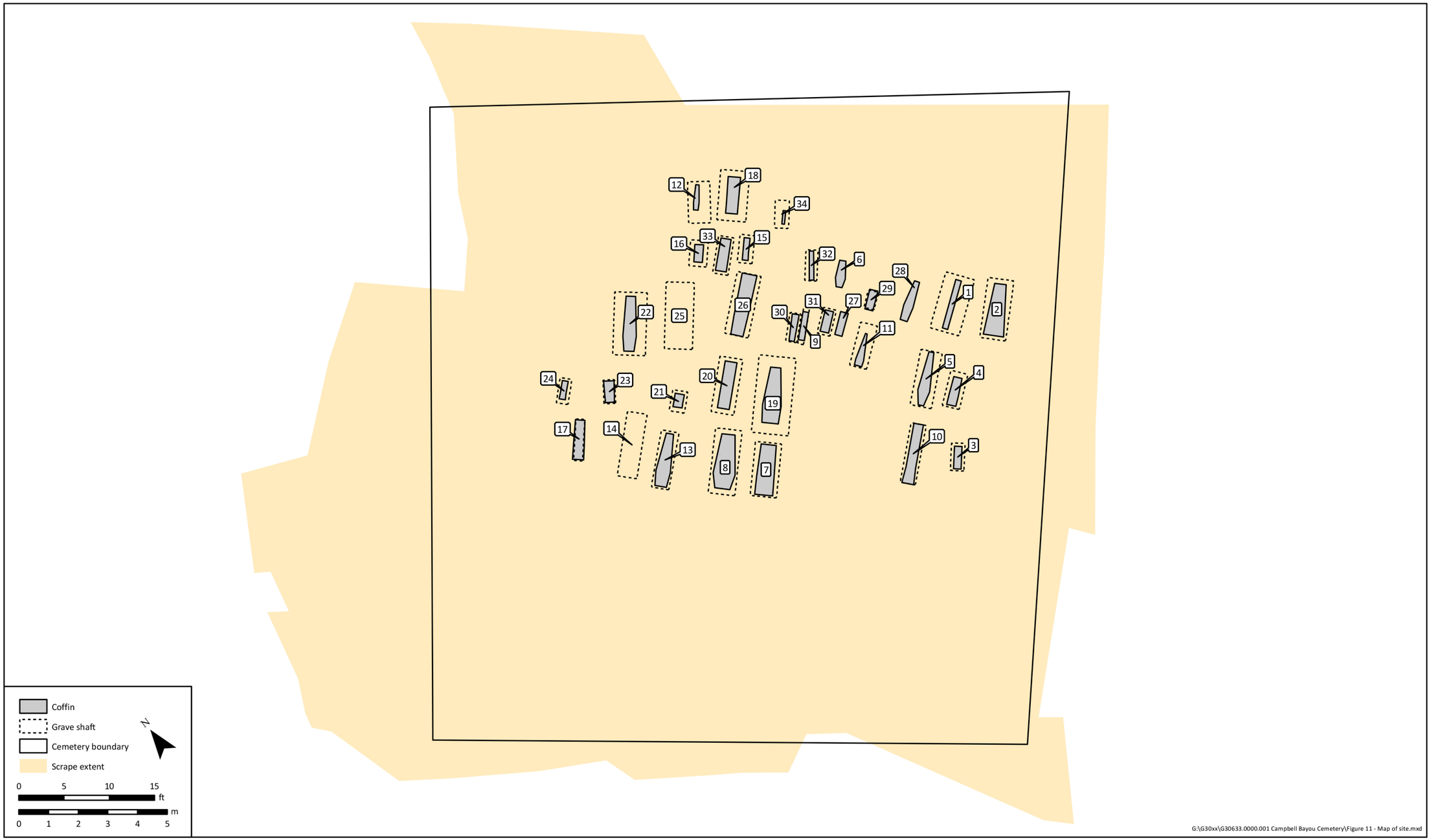


Figure 11. Locations of burials revealed by scraping within Campbell's Bayou Cemetery.

shaft was thought to be a mass grave. Random bricks and intermittent pieces of metal were found in the fill. Continued scraping resulted in the tapering off of the potential grave shaft; however, a metallic coffin with a viewing window was encountered when the backhoe clipped the lid. A total of 34 burial shafts was located and were concentrated in the northeastern half of the bounded cemetery (see Figure 11).

Figure 12. Backhoe excavations along northeastern concrete border.

Removal of the overburden continued until the outline of each coffin/casket was visible once the grave shaft was identified. The grave shaft outline stayed consistent from discovery to the wood outline of the burial container or arch. Stripping the sediments to the exposure of the container lid or arch was necessary to assist in removing extra overburden. This resulted in a significant reduction in excavation time. Burial 14 was the only burial impacted by scraping. Burial 14 was an extremely shallow burial with poor wood preservation and the coffin/casket outline was not visible. The left portion of the skull, clavicle, humerus, and the casket handle were impacted. All remains and the casket handle were recovered and collected for reinterment.

Scraping and examination of the subsurface extended outside the boundary of the cemetery concrete curbing to ensure all remains were removed. The curbing was placed in the late 1960s when no headstones were present. Scraping extended outside the concrete curbing on all sides until encountering subsurface mixed, gley soils (a subsurface layer of clay found beneath waterlogged soils). The west and northwest portion of the cemetery at and beyond the concrete curbing contained trash debris (Figure 13) that consisted of large modern metal debris, bricks, fiberglass, steel rod in brick, a steel plate, copper electrical wire, a 6-x-6-inch creosote beam, automobile brake pads, firebrick, concrete fragments, and cable wire. Scraping outside the southwest and southeast curbing occurred until mixed soils were encountered. This soil was a mixed gley and also contained scrap metal. Each boundary of the cemetery was scraped until mixed gley soils were encountered. The mixed soils indicated the deposits were disturbed and likely outside the boundary of any burials.

Figure 13. Modern inclusions marking edges of the disturbed areas.

Within the undisturbed cemetery boundary, sediments were scraped into the light yellowish brown clayey, silty sand with gravels. Ground saturation, occurring between 4.2 and 4.8 feet, began in this level. Several graves were excavated into this level, and as a result, the entire site was scraped to a depth of 6 feet which was below the base of the deepest-known coffin.

EXCAVATION METHODS

Versar, Inc. personnel excavated the 34 unmarked graves from Campbell's Bayou Cemetery. Documentation of the excavations included photographs, daily logs, field notes, plan maps, burial excavation forms, and burial analysis forms. Because the work was being performed within an area potentially impacted by waste from the Malone Superfund Site, MCP representatives were present to monitor work and ensure no uncontrolled waste materials were encountered in the excavations and to oversee general site safety. Versar personnel were informed of the site conditions and received safety training including use of appropriate personal protective equipment

prior to performing excavations. Safety meetings were conducted daily for all operating staff. Hazards regularly identified include: work around heavy equipment, hot conditions, repetitive motion activities, potential for cuts, punctures and splinters from metal, glass and wood and general site safety issues relating to ongoing activity at the Site. In addition, safety representatives regularly evaluated the excavation for sidewall and bottom stability.

Grave shafts were mapped and measured before excavation. Excavation of the overburden to the arch or coffin/casket lid proceeded by careful hand troweling and/or the use of shovels noting any items of significance within the fill above the lid or arch. The lid or arch and any hardware was mapped and then removed. Documentation of subsequent layers of outer boxes and lids followed the same protocol. Wood preservation was excellent in a majority of the burials, and once the lid or arch was exposed, use of wooden tools and hand excavation was performed to recover remains and artifacts.

Samples of arch wood, coffin/casket wood, and outer box wood were collected for species identification analysis. Wood samples were packed in paper since they were not completely dry by the end of the project. Each sample was labeled with the burial number and sample location, such as lid, arch, base, wall, outer box. These samples were sent to Macrobotanical Analysis for identification of the wood.

Burial excavation forms followed artifact collection protocols set by Tiné and Boyd (2003) and Sprague (2005) (Appendix B). Coffin/casket hardware, nails, tacks, screws, and personal items were collected by area (A, B, C, D, E) so that items not found in situ could be assigned to a portion of the grave shaft:

- Area A defines the area from the cranium to the shoulders.
- Areas B and C are from the shoulders to the midline of the waist; Area B as the right side of the body and Area C as the left.
- Areas D and E are from the midline of the waist to the feet; D as the right left and E as the left leg.

Using the midline of the waist can result in several personal items being assigned to the legs even though they may be from the wrists, so an effort was made to locate such items near the wrists and waist in situ for mapping.

Burials below or at the water table had sticky clay that could not be penetrated with wooden tools. These graves were excavated by hand with the archeologist using latex gloves. Clay does not stick to the latex gloves and gives the archeologist tactile dexterity to remove the clay without damaging the often friable bones. Remains were not rinsed for in situ photographs, and thus in some instances, pictures of the skeletal elements were less than desirable because of the clinging clay. In situ photography of personal items and casket/coffin hardware proved difficult in many instances because of the sediment texture. Remains not under water were excavated with wooden hand tools and natural-hair brushes.

Once in situ documentation was completed, artifacts were collected by area and/or by specific location. Human remains were pedestaled when excavated as much as possible. This involves excavating the surrounding area leaving the remains intact on a base higher than the surrounding area. Direct contact with the coffin base hindered pedestaling in many instances. The skeletal elements were undercut with wooden tools for removal. Human remains were wrapped in paper by skeletal element and placed in a labeled cardboard box with the personal items and hardware and stored on site. Once reaching the lab, they were washed and dried for analysis.

Many of the graves extended below the modern water table and filled with water when excavated. Any portion of a burial below approximately 4.2 feet was in the modern water table. One burial was excavated with standing water present; visibility was almost nonexistent and many bones, teeth, and personal artifacts floated and moved to other areas. Water depth within the casket was approximately 6 inches deep (Figure 14). Once it was apparent this would continue to be an issue, a generator and a wet/dry vacuum were installed at the site. Excavation using the wet/dry vacuum was successful without damaging skeletal elements. The wet/dry vacuum kept the remains visible and could be used to remove sediment from around the bones without necessarily affecting in situ recoding of hardware, personal items, and remains. When excavating by wet/dry vacuum, each area was excavated separately and screened with ⅛- and 1/32-inch mesh by area to ensure integrity in artifact collection.

Figure 14. Example of depth of water filling burials.

Two drainage areas were excavated with the backhoe to assist runoff away from the burials; the areas also served as wash stations when remains needed to be screened during excavation. Large barrels were provided for washing remains in the laboratory. All remains, hardware, and personal items were washed and laid out to dry. Rust removal was only moderately attempted because of potential damage to the hardware and personal items. Sediments near bone or that could contain the remains of an infant or child were screened with 1/32-inch mesh. All other sediments from within the coffin/casket were screened using ⅛-inch mesh. Photographs of coffin hardware, personal items, and human remains with distinct pathology or other notable changes were taken at the conclusion of analysis before transfer to the new casket. Once all analysis and photography were complete, the human remains, hardware, and personal items were placed in the new casket and

secured with a permanent number tag that corresponds to the burial numbers in this report. Infant remains and small children's remains were placed in a smaller casket inside the larger casket due to the size of the permanent caskets. Coffin/casket hardware analysis occurred through photography provided to the specialist.

Burials and the extent of the scraped area were mapped by surveyor Mr. Joseph Baggett. Multiple points and depth were taken on each burial that did not have to be removed before Mr. Baggett was available. Outer box and arch outlines, when present, and coffin/casket outline depths were taken for each burial, noting the shape of the outline. The niche between the arch and the coffin/casket was also mapped when it could be discerned in arch burials. In many instances, the walls of the niche had collapsed and the coffin/casket and arch wood had warped and sunk. Multiple depth measurements to the base of the coffin/casket were also collected for each grave.

ANALYSIS OF THE SKELETAL REMAINS

The analysis of the skeletal remains occurred in an outdoor lab at the site while excavations continued and moved to an on-site field laboratory once excavations were completed. Analytical protocols followed Buikstra and Ubelaker (1994). Strict standards were implemented to ensure measurements and nonmetric observations were recorded by the same individual. Skeletal remains were laid in anatomical position. The crew collected data such as presence/absence of the skeletal elements, completed the skeleton recording forms, and dental recording forms. All metric data, nonmetric data, sex estimation, age estimation, scoring entheseal/musculoskeletal stress marker changes, and pathological conditions were scored by Dr. Whitley.

CURATION OF MATERIALS

All artifacts collected were associated with graves and will be reinterred with the associated remains. All field and laboratory records and maps were prepared for curation, including the placement of these items in archivally stable containers. Field notes, burial forms, photographs, and other data gathered during these investigations will be curated at the Galveston County Historical Museum.

REINTERMENT OF REMAINS

All remains and funerary objects will be reinterred inside Forest Park East Cemetery. The remains of each disinterred burial and its associated artifacts were placed in a specially made, individual, solid pine box for reburial. The reinterment of the remains will be conducted under the supervision of the attending mortician. An appropriate stone marker will be placed to commemorate the deceased.

SECTION 5
RESULTS

BURIAL AND MORTUARY DESCRIPTIONS

This section provides a description of the excavation, mortuary characteristics, and osteological analysis results. A description of the excavation of each grave is provided, including crew observations not covered in the mortuary characteristics forms. Mortuary characteristics include burial shaft and coffin shape, size, and depth, presence or absence of a viewing window, paint, shell in the fill, hardware, personal artifacts, and burial position. Osteological analysis includes condition of the remains, age, sex, stature, dental inventory, dental pathology, pathology, and entheseal changes.

PATHOLOGY

Human remains are the most direct evidence of the disease experience of past populations, though only chronic disorders are visible on the skeleton. The immune status of the host, the virulence of the parasites, the sensitivity of the population affected, malnutrition experienced by the population, and ecological considerations all significantly influence the rates of infectious disease (Roberts and Manchester 1995:129).

Infectious disease markers on the human skeleton can be divided into nonspecific and specific infections. The skeleton is only able to respond to infection in a limited number of ways, with many leaving changes that are indistinguishable from one another. For example, bony infections from staphylococci, streptococci, pneumococci, and typhoid bacillus bacteria all produce the same indistinctive lesions (Roberts and Manchester 1995:126). However, periostitis, osteitis, and osteomyelitis are three categories of nonspecific infections that leave identifiable changes to the skeleton even though the specific cause of the infection cannot be identified. A handful of infectious agents do leave distinctive patterns characterizing the disease itself and include diseases such as tuberculosis, treponematosis, leprosy, brucellosis. Tuberculosis, treponematosis, and leprosy are found in almost all populations world-wide and are the most archeologically visible.

Poor medical care, or the lack of, resulted in bacteria and viruses accounting for the majority of deaths in the past, killing younger individuals at much higher rates than today. Infants and children were highly susceptible due because of their vulnerability to respiratory and gastrointestinal tract infections, which leave markers such as cribra orbitalia, periostitis, rickets, and scurvy. Even without treatment, some infections cleared in a short amount of time, whereas others, such as cholera, scarlet fever, lockjaw/tetanus, meningitis, typhoid, appendicitis, influenza, measles, bronchitis, and pneumonia, could kill quickly (Roberts and Manchester 1995:125). Sickness causing a relatively quick death that does not have an opportunity to affect bone, or simply does not affect bone in the progression of the disease, will not leave changes. Therefore, it must be remembered that inflammatory bone responses are the manifestations of long-term infections and may not always be the direct cause of death.

The pathological descriptions listed in the burial descriptions below include processes outside of infection identifying the presence of metabolic and endocrine, neoplastic, trauma, joint disease, and infectious diseases. The bone alterations found in the Campbell's Bayou Cemetery population have indications of trauma, such as fractures and vertebral fusion, evidence of bone infection, such as woven or sclerotic bone, rheumatoid arthritis, trepanation, osteoarthritis, and Schmorl's nodes.

COFFINS AND CASKETS

Exhumations at Campbell's Bayou Cemetery revealed a mixture of burial container shapes. "Coffins" date to early interment traditions. Hexagonal-shaped coffins, the most common shape, were generally six-sided with narrow heads, wide shoulders, and narrow feet. Coffins, however, also were manufactured in several other shapes. A second type of coffin shape found at Campbell's Bayou Cemetery was the tapered box that has a wide head tapering to narrow feet. The third coffin shape identified at the cemetery was an oval-ended or elliptical burial container. During the late nineteenth century, though, these coffin shapes gave way to rectangular-shaped burial containers termed "caskets." Although coffins continued to be used as late as the 1920s (Bybee 2002), preferences for caskets increased by the 1870s, and caskets were regularly found in coffin hardware catalogs by the 1880s. Rectangular caskets were available as early as 1830, though they were not in common use until after 1858 (Bybee 2002). The majority of the burial containers at Campbell's Bayou Cemetery are the later-dating "casket."

DESCRIPTIONS OF BURIALS 1–34

The following discussions present descriptive information for each of the 34 burials. The burials were of individuals ranging from preterm fetuses to infants and children, subadults, and adults ranging in age from 25–60+ years (Table 1). The discussions present details about burial depth, orientation, and body position; an inventory of artifacts; an osteological inventory; demographic and pathological information; a dental inventory; and pathology data for dental, anomaly, and modification noted on the remains. Burial numbers are those previously assigned by Versar, Inc., during discovery investigations. Burial depth refers to the depth from the ground surface to the bottom of the burial container, as determined through GPS. In the following discussions, skeletal preservation is defined as follows:

- Excellent: skeleton complete and fully intact
- Good: skeleton more than 75 percent complete, with most bones, particularly long bone shafts, intact
- Fair: skeleton 25–75 percent complete and/or fragmented or deteriorated
- Poor: less than 25 percent of skeleton present and/or highly fragmented or deteriorated

Burial 1

Burial 1 is the grave of a 50–60-year-old male buried in an oval coffin. Transition analysis gives an age-at-death range of 35–90, with the maximum likelihood at 66.8 years.

Burial 1 was the first burial discovered during scraping. During scraping, the grave shaft was first apparent at 45.7 cm (1.5 feet) below surface. The backhoe continued to scrape the sediments until the outlines of the coffin could be identified at 112.8 cm (3.7 feet) below surface. The Burial 1

Table 1
Overview of Burials at Campbell's Bayou Cemetery

Burial	Age Estimate	Sex	Grave Shaft	Coffin/Casket	Coffin/ Casket	Wood Arch	Outer Box	Arch or Coffin Lid Shell	Viewing Window	Paint
1	50–60	Male	Rectangular	Oval	Coffin	Yes	No	No	–	–
2	Older adult	Male	Tapered	Tapered	Coffin	No	No	No	–	–
3	0–3 months	Unknown	Rectangular	Rectangular	Casket	No	No	No	Ovoid	Red
4	No skeletal remains	Unknown	Rectangular	Rectangular	Casket	No	No	Yes	–	–
5	9–11 years	Probable Male	Oval	Hexagonal	Coffin	Yes	No	No	–	White
6-1	0–1 month/term	Unknown	Indeterminable	Hexagonal	Coffin	No	No	No	–	–
6-2	12–15 months	Unknown	–	–	–	–	–	No	–	–
7	60+ years	Female	Rectangular	Rectangular	Casket	No	Yes	No	Ovoid	Red
8	25–35 years	Probable Male	Rectangular	Hexagonal	Coffin	Yes	Yes	No	–	Red
9	No evidence	–	Rectangular	Rectangular	Casket	No	No	Yes	–	–
10	Unknown	Probable Female	Rectangular	Rectangular	Casket	Yes	No	No	–	–
11	6 years	Unknown	Rectangular	Tapered	Coffin	No	No	Yes	Ovoid	–
12	3–6 months	Unknown	Rectangular	Rectangular	Casket	Yes	No	Yes	–	–
13	Adult	Probable Male	Hexagonal	Hexagonal	Coffin	No	No	No	–	–
14	55–60+	Probable Male	Rectangular	Indeterminable	–	No	No	No	–	–
15	4–7 months	Unknown	Oval	Rectangular	Casket	NO	Yes	Yes	–	–
16	32 wks to term	Unknown	Rectangular	Rectangular	Casket	Yes	Yes	Yes	–	Red
17	4 1/2–5 1/2 yrs	Unknown	Rectangular	Rectangular	Casket	No	No	No	–	White
18	3–5 years	Unknown	Rectangular	Rectangular	Casket	Yes	No	No	–	–
19	Adult	Probable Male	Rectangular	Rectangular	Casket	Yes	No	Yes	–	–
20	7–9 years	Unknown	Rectangular	Rectangular	Casket	Yes	No	No	–	–
21	30 wks to term	Unknown	Irregular	Rectangular	Casket	No	No	No	–	–
22	45–55 years	Male	Irregular	Hexagonal	Coffin [Metal]	No	Yes	No	Ovoid	–
23	No skeletal remains	–	Oval	Rectangular	Casket	No	No	No	–	–
24	34–36 wks to term	Unknown	Rectangular	Rectangular	Casket	Yes	No	Yes	–	White
25	25–30 years	Male	Rectangular	Rectangular	Casket	Yes	No	Yes	–	–
26	40–55 years	Female	Rectangular	Rectangular	Casket	Yes	No	Yes	–	–

Table 1 (cont'd)

Burial	Age Estimate	Sex	Grave Shaft	Coffin/Casket	Coffin/ Casket	Wood Arch	Outer Box	Arch or Coffin Lid Shell	Viewing Window	Paint
27	3–5 months	Unknown	Indeterminable	Rectangular	Casket	No	No	Yes	–	–
28	3–5 years	Unknown	Indeterminable	Hexagonal	Coffin	No	No	No	–	–
29	32–38 wks to term	Unknown	Rectangular	Rectangular	Casket	Yes	No	No	–	–
30	6 mo–1 year	Unknown	Rectangular	Oval	Coffin	Yes	No	No	–	–
31	No skeletal remains	Unknown	Rectangular	Rectangular	Casket	No	No	Yes	–	–
32	35–40 weeks	Unknown	Rectangular	Rectangular	Casket	No	No	No	–	–
33	2–5 months	Unknown	Rectangular	Rectangular	Casket	No	No	No	–	–
34	30 wks to term	Unknown	Rectangular	Rectangular	Casket	Yes	No	No	–	–

shaft was originally excavated to or below the ground water level. Likely, the burial was submerged in ground water on a continuous basis because the remains were well preserved and the cortex and spongy bone dense and intact. These remains had a "china-like" quality and were a metallic gray in color.

Burial Shaft Size and Depth: Rectangular; grave shaft 196 cm SW/NE, 101 cm wide; depth, 112.8 cm (3.7 feet) to coffin outline and 146.3 cm (4.8 feet) to base of grave.

Items of Note in Grave Fill: No

Wood Arch: Yes. The wood arch consisted of three planks covering the torso and shoulder area. Each plank was 28 cm wide and 65 cm long.

Outer Box: No

Coffin Description: Oval coffin made of wood; 169 cm SW/NE and 19 cm at the ends

Painted: No

Viewing Window: No

Hardware: No coffin hardware

Mortuary Artifacts: Square cut nails

Wood preservation: Good

Personal Items: A single white Prosser button was found near the left elbow. The button is 1 cm (16 lines) in diameter and has four holes.

Burial Position/Taphonomy: The body was deposited on its back in an extended position. The arms were semi-flexed with the right and left arms folded at the elbow and hands at the hips.

Skeletal Preservation: Excellent

Sex: Male

Age-at-Death: 50–60 years; transition analysis gives the maximum likelihood at 66.8 years.

Stature: 171.8 cm (5' 7.7")

Dental Inventory: Edentulous

Dental Pathology/Anomalies/Modification: Maxillary bone has resorbed to the nasal spine leaving nothing but a flat palate. On the mandible, the bone has resorbed to the mandibular foramen.

Pathology: Pathological changes are consistent with an older adult. Damage to the left superior and inferior facets of cervical vertebrae 5 and 6 and thoracic vertebrae 1 and 2, accompanied by the fusion of cervical 3 and 4, suggest trauma to the neck. The inferior superior left facets have

eburnation across the surface with macroporosity and sharp lipping. At the superior facets, the bone has resorbed leaving an indentation, or buttress, into which the inferior facets of the superior vertebrae fit. In addition to the osteoarthritis, Schmorl's nodes occur on the superior portion of the bodies of vertebrae lumbar 1 and thoracic 9, 10, 11, and 12.

Entheseal Changes: Osteoarthritis is present on the vertebral column, wrists, and ankles. Osteophytes are present on greater than two-thirds of the body of cervical 2, 3, 4, and 6 and are present on the anterior body of thoracic vertebrae 5 through 12. These osteophytes curve superiorly. Cervical 3 and 4 are fused at the body and the inferior and superior facets. Osteophytes are present on the lateral portions of the body. Robusticity is present on the majority of the musculoskeletal stress markers. Osteophytes are present on the right anterior body of thoracic vertebra 11, extending 5.7 millimeters (mm) and curving superiorly. Lumbar vertebra 5 also has a large osteophyte extending 9.9 mm on the right body and 5.8 mm on the left body. Articulations on all long bones and carpals have slight eburnation with a sharp lip.

Burial 2

Burial 2 contains the remains of a male of older age who is edentulous.

Burial 2 was discovered during scraping at the same time as Burial 1 and is the easternmost grave. The grave shaft was first apparent at the silty clay horizon approximately 45.7 cm (1.5 feet) below surface. The backhoe scraped the sediments until the outlines of the coffin could be identified at 103.6 cm (3.4 feet) below surface. Burial 2 shaft was originally excavated to the ground water level but not as deeply as Burial 1 shaft. No ground water seeped into the excavation. The remains were friable and in poor condition. Their condition may be a result of being just above the water table and probably subjected to cycles of inundation. Wood preservation in this grave was poor except along the base of the grave.

Burial Shaft Size and Depth: Pinch-toe tapered grave shaft; 204 cm SW/NE and 88 cm wide. The top of the coffin was 103.6 cm (3.4 feet) from the surface and 128 cm (4.2 feet) at the greatest depth.

Items of Note in Grave Fill: No

Wood Arch: No

Outer Box: No

Coffin Description: Tapered/Pinch-toe; 175 cm SW/NE; 69 cm at headboard; 39 cm at footboard

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: Square cut nails

Wood preservation: Good

Personal Items: Numerous buttons were found with these remains. Five four-hole bone buttons, 15 mm (24 lines), were in the burial. They were located at the midshaft of the right humerus, one at the pelvis, one on each wrist, and one from an unknown location. In total, three Prosser buttons were found: one at the neck, the pelvis, and the left knee. Those at the pelvis and knee are 12.5 mm (20 lines) four-hole dish type plain buttons with no design, and the Prosser button at the neck is 12 mm (18 lines). A single metal button with a corroded shank was found in area E of the grave. The button design is consistent with a cloth-covered button. Shank shape and size are unidentifiable.

Burial Position/Taphonomy: This is a single burial with the body deposited on its back in an extended position. The legs were extended and the arms folded at the elbow with hands placed over the hips; right hand on left hip and left hand on the right hip.

Skeletal Preservation: Fair

Sex: Male

Age-at-Death: Older Adult

Stature: 173 cm (5' 8") based on body length in grave

Dental Inventory: Edentulous

Dental Pathology/Anomalies/Modification: The individual lost all teeth, with complete resorption of all tooth sockets. Maxillary resorption is almost to the nasal spine, and mandibular resorption is to the mandibular foramen with a sharp margin retained at the location of the incisors.

Pathology: Bones are friable and very fragmented, precluding the observation of the extent of pathological changes. Of those that are observable, the left acetabulum has lipping, porosity, and the development of sclerotic bone on the lateral edge. On the sternal facet of the right clavicle, a sclerotic area of bone, measuring 9.6 mm medial-lateral and 8.3 mm anterior-posterior, is present. The sternal facet also extends on the anterior edge.

Entheseal Changes: Exostoses are present on the posterior superior surfaces of the left and right olecranon process. The right is more developed than the left, with the left having minimal development of exostoses. Exostoses extend 8.7 mm on the olecranon process on the right. This is also termed an olecranon spur. Capasso et al. (1999) defines this entheseal change as a "woodcutters lesion," and it is consistent with occupations such as woodcutting, blacksmithing, and baseball playing. These activities involve stress on the triceps brachii insertion during flexion and extension with maximum stress when the arm is horizontal, flexed elbow, and working at full force (Capasso et al. 1999:78). General hypertrophy of the right and left humerus suggests general habitual stress on this bone that could have been extreme.

Burial 3

Burial 3 contains the remains of an infant 0–3 months of age.

Burial 3 was discovered the same day as Burial 1 during scraping. The grave shaft was evident at the silty clay horizon approximately 45.7 cm (1.5 feet) below surface. Scraping occurred until the outlines of the casket could be identified at 97.5 cm (3.2 feet) below surface. No ground water seeped into the excavation. The viewing window had slumped to the southwest side of the grave, and the remains at the head of the grave were in good condition. Remains were only found under the viewing window. Adipocere was also present and in thick strips under the viewing window. A large tangle of rootlets had collected under the viewing window. It is possible the casket was painted red, but this could not be confirmed. Blotches of red under the viewing window that are consistent with the color of red paint in other caskets in the cemetery suggest the presence of paint. Sediments around the grave appeared intact with no disturbance; however, the east wall of the casket appeared to be sheared and removed. Casket wood could be removed in large strips, and some removed as complete planks.

Burial Shaft Size and Depth: Rectangular; 98 cm SW/NE and 88 cm wide; top of the coffin was 97.5 cm (3.2 feet) from the surface and 143.3 cm (4.7 feet) at the greatest depth.

Items of Note in Grave Fill: Directly on the outer box lid were mussel shells with a 25 percent–40 percent concentration. Large amounts of pea-sized gravels were within the burial itself. This may be due to the burial having been excavated into the sand clay sediments that had gravel inclusions.

Wood Arch: No

Outer Box: Rectangular; 98 cm SW/NE and 46 cm in width. The outer box was irregular due to collapse and warping of the wood, most evident near the viewing window. The viewing window had slumped west of its original position with the western edge of the glass slumping inferiorly. The lid of the outer box and the casket were in contact and could be separated based on the casket hardware and a small amount of sediment between the two in certain areas.

Casket Description: Rectangular; 76 cm SW/NE; 26 cm in width; large amounts of pea-sized gravels encountered within the casket

Painted: Possible but inconclusive, red

Viewing Window: Ovoid; 27 cm long axis; 14.5 cm at head and 17 cm at the base

Hardware: Yes

Mortuary Artifacts: Square cut nails

Wood Preservation: Excellent

Personal Items: No personal artifacts recovered

Burial Position/Taphonomy: This is a single burial that was semi-articulated and disturbed.

Skeletal Preservation: Good

Sex: Unknown
Age-at-Death: 0–3 months

Stature: N/A

Dental Inventory: All teeth present are deciduous. Maxillary right molar 1 (M1), and both incisors 1 (I1) are present. Mandibular teeth include the right M2, and I1. Left mandibular teeth include I1, I2, canine (C), and M1 and M2. Development was not complete with complete crown formation and partial formation of the crown on the lateral incisors and molars 1 and 2. Only the tip of the canine had developed. Development for the molars and canines was scored as a 4 or 5.

Dental Pathology/Anomalies/Modification: No pathological conditions observed on the dentition

Pathology: No pathological changes observed on the skeletal remains

Entheseal Changes: N/A

Burial 4

Burial 4 was devoid of preserved skeletal remains. Casket length suggests an individual less than 3–4 years of age.

Burial 4 is located south of Burials 1 and 2. This burial was one of the easternmost graves at the site. It is likely the lid warped until it touched the base of the casket, making it difficult to identify the lid from the base. The southwest corner of the casket was missing. Dark gray matrix filled the irregularly shaped grave shaft. The casket outline was distinct and dug into the clay layer. Moist sediments with an organic fill and rootlets were within the grave fill, and a distinct shell layer lay directly on the lid.

Burial Shaft Size and Depth: Irregular rectangular; 122 cm SW/NE and 59 cm wide.

Items of Note in Grave Fill: Distinct shell layer of moderate concentration directly on the casket lid

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 96 cm SW/NE; 32 cm at the head and shoulders and 28 cm at the feet. Though the grave shaft was irregular, the casket had little warping except the hard-to-identify lid.

Painted: No

Viewing Window: No

Hardware: Ornamental tack

Mortuary Artifacts: Square cut nails

Wood Preservation: Good

Personal Items: No

Burial Position/Taphonomy: N/A

Skeletal Preservation: No remains identifiable in the casket

Sex: Unknown

Age-at-Death: ≤3–4 years

Stature: N/A

Dental Inventory: N/A

Dental Pathology/Anomalies/Modification: N/A

Pathology: N/A

Entheseal Changes: N/A

Burial 5

Burial 5 contains the remains of a possible male, 9–11 years age-at-death.

Burial 5 was exposed after excavation of Burials 4 and 3 because of stratigraphic placement. This burial was deeper than the other two although neither Burials 3 nor 4 lay directly on top of Burial 5. Exposure later was necessary due to the width of the bucket that would have damaged both burials. At the time of excavation, the crew noted the grave was larger than those encountered for the small children, but not large enough to be a full-sized adult.
Burial Shaft Size and Depth: Semi-ovoid; 190 cm SW/NE and 73 cm wide. The top of the grave shaft was 140.2 cm (4.6 feet) from the surface and 161.5 cm (5.3 feet) at the greatest depth.

Items of Note in Grave Fill: No

Wood Arch: Rectangular; 185 cm SW/NE and 38 cm at the head, 58 cm at shoulders and 35 cm at the footboard.

Outer Box: No

Coffin Description: Hexagonal; 182 cm SW/NE; 18 cm at the headboard, 40 cm at the shoulders and 17 cm at the footboard. Unlike most of the other burials in Campbell's Bayou Cemetery, only 5 cm of sediment had to be removed between the exposed outline of the coffin lid and the exposure

of the entire lid. The lid was very thin and lay directly on the remains, adhering to the bones. Sections of the coffin walls were missing, and those present were poorly preserved. Sediments within and around the burial were moist but not sticky.

Painted: White paint is present on large sections of the wood.

Viewing Window: No

Hardware: Ornamental tacks and lining tacks

Mortuary Artifacts: Square cut nails and miscellaneous wire nails

Wood Preservation: Fair

Personal Items: Buckle fragments were found in the pelvic area. Five buttons were found at the waist and two additional buttons were found in the screen. All are plain, white dish Prosser buttons: three are 16 mm (26 line) and four are 10 mm (16 lines).

Burial Position/Taphonomy: The remains are in excellent condition. This interment contained one individual lying on its back. The remains were semi-articulated and in an extended position. Both humeri were tightly positioned against the side of the body. The right and left arms were folded at the elbow, and the hands placed at the lower chest approximately and lumbar 1.

Skeletal Preservation: Excellent
Sex: Possible male; greater sciatic notch was distinctly shaped as a level 5. However, sexing methods of juvenile remains have lower success rates than in adults because of prepubescent development of sexual characteristics.

Age-at-Death: 9–11 years

Stature: Unknown

Dental Inventory: No deciduous dentition remained. Mandibular right and left third molars are the only dentition missing.

Dental Pathology/Anomalies/Modification: Cavities were present on most teeth. Mandibular left and right first molars and the right second incisor had cavities that destroyed the crown and extended into the root. Interproximal caries were most prevalent and, if present, were on the mesial and distal sides of the tooth. The following teeth had interproximal caries maxillary right premolar one (PM1), C, and I1 and I2; left maxillary I1 and I2, and PM1 and PM2; mandibular right PM1 and PM2, C, and maxillary left I1, I2, C, and M2. Occlusal caries are on the molars with one lingual carie on the mandibular buccal surface of PM1. In addition, hypoplasia is extensive, affecting almost every tooth. Most likely a result of systemic metabolic stress, recurrent insults are present at the ages of approximately 1, 2, 2 years 7 months, 3 years 6 months, 4 years 8 months, 5 years 2 months, and 5 years 7 months.

Pathology: No gross observable pathological changes were evident on the skeletal remains. The bone was in excellent condition with the cortex and spongy bone well preserved and intact; excluding the vertebrae and ribs.

Entheseal Changes: No

Burial 6

Burial 6 contains the remains of two individuals aged 0–1/term month and 12–15 months.

Burial 6 was discovered by accident when the backhoe struck the concrete crypt lid during scraping. No grave shaft was visible, and there was no indication a grave would be in that location. At a depth of 88.4 cm (2.9 feet), the grave was still within the topsoil/silt stratigraphic layers. The two infants were placed in the same concrete vault with an ovoid lid and hexagonal area in the center for a coffin. The vault was surrounded by handmade bricks around the edge of the lower half of the concrete crypt. The concrete lid rested upon the lower portion of the crypt and the bricks. Upon opening the crypt, no coffin was visible. Rots and sediment filled the base. The southwest base of the crypt was broken and roots protruded through the organic sediment. Fragments of bricks and rocks also lay in the base. Removal of the sediments filling the lowest few centimeters of the crypt resulted in the collection of several fragments of bricks and recovery of some skeletal remains. The dirt that was able to be gathered, including some from the area slumped under the southwest area (head), was screened and many more remains were found. At the time of final scraping to ensure no additional remains were present, a small area that was under the crypt appeared. Sediments from the circular area were collected and screened. Additional remains were in these sediments; likely, the roots in the concrete crypt were associated and had disturbed the remains, pulling them deeper into the ground.

Burial Shaft Size and Depth: None observable

Items of Note in Grave Fill: None

Wood Arch: No

Outer Box: Yes; concrete crypt. The lid is 120 cm in length SW/NE, headboard 34 cm, shoulders 60 cm, footboard 34 cm. The shape of the space for the coffin is hexagonal and 90 cm in length, 20 cm at the headboard, 34 cm at the shoulders, and 20 cm at the footboard.

Coffin Description: Unobservable

Painted: Unknown

Viewing Window: No

Hardware: No

Mortuary Artifacts: Cut nails and brick

Wood Preservation: Poor

Personal Items: None

Burial Position/Taphonomy: Unknown position; taphonomic processes have disturbed the remains and broken the floor of the concrete vault.

Individual 6-1

Skeletal Preservation: Good

Sex: Unknown

Age-at-Death: Term 0–1 month

Stature: N/A

Dental Inventory: No teeth were found; perhaps due to taphonomic processes

Dental Pathology/Anomalies/Modification: N/A

Pathology: No pathological conditions observed

Entheseal Changes: N/A

Individual 6-2

Skeletal Preservation: Good

Sex: Unknown

Age-at-Death: 12–15 months

Stature: N/A

Dental Inventory: Maxillary deciduous dentition represents the only teeth present. These include right and left M2, right C, left I2, and left M1. Some root development is present on the first molars.

Dental Pathology/Anomalies/Modification: None observable

Pathology: No observable pathological conditions.

Entheseal Changes: N/A

Burial 7

Burial 7 contains the remains of a female 60+ years of age-at-death

Burial 7 is in the line of graves defining the southernmost edge of the cemetery. The grave shaft is oriented southwest to northeast. The casket outer box and lid warped with steep sides angling 45–60 degrees. A large section of the casket lay relatively level, due to the presence of the viewing glass. The oval viewing window is large and extends from the face to mid-torso. A wood lid covered the viewing window. The outer box and casket lid warped 35 cm in depth from the wood outline exposed during scraping. The outer box was defined by the presence of casket nails and screws and the presence of casket hardware.

Burial Shaft Size and Depth: Rectangular; 182.8 cm SW/NE and 88.9 cm wide. Depth to the visible coffin outline is 112.8 cm (3.7 feet) and the base of the grave is 155.4 cm (5.1 feet).

Items of Note in Grave Fill: None

Wood Arch: No

Outer Box: Rectangular; 182.8 cm SW/NE and 88.9 cm wide

Casket Description: Rectangular; 170.1 cm SW/NE and 60.9 cm at the headboard, 58.4 cm at the shoulders, and 50.8 cm at the footboard

Casket Painted: Yes: painted red

Viewing Window: Ovoid; 60 cm in length, 22 cm upper width, 29 cm middle, and 27 cm lower area. The glass is 2.3 mm thick, though glass thickness varies with other fragments, with those closest to the edge of the glass measuring 1.8 cm. When viewed on its edge, the glass has a green tint rather than the clear glass seen when lying flat. The glass has slight hazing but no opalescent sheen.

Hardware: Yes

Mortuary Artifacts: Nails and screws

Wood Preservation: Excellent

Personal Items: A hard rubber comb was found at the occipital protuberance. The texture and color mimics bone. The seven tines are rubbed smooth and do not retain the rough bone-like texture. Two of the tines are broken. The comb is 7 cm by 8 cm. A similar "Rubber Back Comb" is in the Sears, Roebuck and Co. 1897 catalogue (pg. 839); each comb sold for $0.07. Six two-hole shell buttons of the same size were in situ in a line down the center of the body under the viewing window. Although most buttons fragmented after being removed, two survived and measure 12.7 mm (20 lines). A small shell four-hole button measuring 9 mm (14 lines) and a dish-shaped Prosser 16-mm (26 lines) button were found in area B. One button found during screening is a white, dish shaped Prosser, 10 mm (16 lines).

Burial Position/Taphonomy: Interment is a single burial with articulated and extended skeletal remains. The cranium–pelvis orientation is SW/NE, with the head in the southwest. The head is turned to the left and is not tipped or tilted. The arms are fully extended to the sides of the body with the hands at the thighs.

Skeletal Preservation: Poor; remains that survived were those in direct contact with the viewing window

Sex: Female

Age-at-Death: 60+

Stature: Unknown

Dental Inventory: N/A; all mandibular bone was missing. No teeth were found during screening.

Dental Pathology/Anomalies/Modification: N/A

Pathology: Evidence of healed trepanation is present on the right parietal. The removed area of bone is 60 mm superior to inferior in orientation and 55 mm anterior-posterior. The parietal damage is consistent with the method of scraping since the edge is beveled and the bone pinches to a sharp ridge. The bone is fully healed and there is no evidence of woven or sclerotic bone. The thin bone closest to the center of the removed bone is 1.7 mm thick whereas the undamaged bone is 6.4 mm thick.

Entheseal Changes: N/A

Burial 8

Burial 8 contains the remains of a probable male aged 25–35 years-at-death.

Burial 8 is west of Burial 7 in the southernmost row of graves in the cemetery. The grave was dug well into the water table and excavations were difficult due to the constant filling of the grave. Large ditches to drain water from the excavation area helped, but only with burials not dug as deeply. The water table begins around 137.2 cm (4.5 feet). Bones were recovered as best they could but most were found through screening. The crew removed approximately 55 cm of sediment from the exposed edges of the coffin to the top of the warped outer box. Upon removal of the soil, the outline of a hexagonal coffin became visible; the coffin lid had collapsed toward the midline of the grave with the wood molded around the remains. Mapping was difficult since the base of the grave shaft was filled with 10–20 cm of water. In order to facilitate mapping and removal, bones were staked with colored skewers. Crania and feet were taken out as a unit and screened to find remains.

Burial Shaft Size and Depth: Rectangular; 220 cm SW/NE and 90 cm wide. Depth to coffin outline 134.1 cm (4.4 feet), and base 173.7 cm (5.7 feet).

Items of Note in Grave Fill: No

Wood Arch: No

Outer Box: Rectangular; 202 cm length, 69 cm headboard, 78 cm shoulders, 70 cm footboard

Coffin Description: Hexagonal; 184 cm SW/NE, 50 cm at headboard, 74 cm at shoulders, and 44 cm at footboard.

Coffin Painted: Yes, red

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: 22 wire cut nails

Wood Preservation: Excellent

Personal Items: Two 12.5-mm (20 lines) four-hole dish-type Prosser buttons were found: one in Area A and one in Area C. Areas A, B, and D have metal buttons that are 15 mm (24 lines). The button in Area B is a two-piece domed metal button with a shank that is punched through the back, shank missing. The button in Area A is a one-piece flat disc metal button, and the last in Area D is a one-piece domed flat disc metal button.

Burial Position/Taphonomy: This burial is a single interment with the individual placed on its back. The body was articulated and lay in an extended position. Cranium–pelvic orientation is SW/NE with the cranium in the SW. Arms and hands were extended at the side.

Skeletal Preservation: Excellent

Sex: Probable male

Age-at-Death: 25–31 years

Stature: 168.5 cm ± 3.3 cm (5' 6.3")

Dental Inventory: Teeth are in good condition with maxillary left I2 and M3 missing. Mandibular right M3, PM2, I2, and I1 and left I1 and PM 2 are missing. Each is missing with no associated alveolar bone.

Dental Pathology/Anomalies/Modification: Small caries are present on several teeth with the majority as interproximal caries. These caries are on the right maxillary M1 mesial, I2 mesial and distal, I1 distal, and left I1 distal. An occlusal carie is on the mandibular right M1. Dental calculus occurs in minor, moderate, and heavy depositions. Minor calculus is on the maxillary right PM1 and left M1; and mandibular left M3, M1, PM1, and right PM1 and M2. Moderate deposits are on the lingual side of the left C, and heavy deposits are on the lingual and labial sides of the left I2 and right C. Enamel pits on the buccal groove and deep fissures are present on all observable molars. These were also found in Burial 5.

Dental modifications associated with artifact use or production are present with this individual. Tooth wear occurs in a pattern suggesting use of the mouth to hold objects. Significant polish wear is present and several teeth have chips from use. Lingual wear is present on the maxillary canines, and incisors. The left I1 and canine have polish extending across the occlusal plane with a chip on the distal occlusal surface of I1. Right maxillary incisors and the canine have lingual wear and polishing with chips on the mesial and distal sides of the canine. Right PM1 has polishing and a wear facet on the lingual mesial side of the tip with a chip occurring at the most distal point of the wear facet. On the mandible, left M1 and M3 have heavy wear on the buccal cusps. Occlusal grooves and polished facets are on the mesial and distal sides of the mandibular left PM1. Both facets angle toward the lips. The canine wear facet angles from distal to the occlusal plane. Polish is across the entire labial surface of the right I2. The right canine has a polished facet 3.0 mm from the tip of the occlusal surface and also has a wear groove on the distal edge. PM1 right has a polished wear facet on the labial mesial tip. The angle, direction of facet wear, tooth chip location, and teeth involved suggest this is occupational wear associated with using the mouth to hold objects, and angle of pull of the item in the mouth is lower left to upper right.

Pathology: A distal foot phalange that had been broken had completely healed. Eburnation and lipping s present on most of the articular surfaces. Left mandibular condyle exhibits eburnation and pinpoint porosity with osteophytes on the mesial side. The corresponding temporo-mandibular fossa had lipping, narrowing of the medial aspect of the fossa and eburnation. The dens and dens facet of cervicals 1 and 2 have sharp lipping of the facet circumference with eburnation on the dens facet of the atlas. Sharp lipping, eburnation and porosity is present across the distal epiphyses of the femora. The femoral head, too, has lipping on greater than two-thirds with barely discernible eburnation. The right patella has eburnation and lipping on greater than two-thirds of the bone. The first proximal phalange of the foot has eburnation with pinpoint porosity and sharp lipping. All tarsals, metatarsals, calcaneus, and talus have eburnation greater than two-thirds of the surface, with coalesced porosity and a ridge of sharp lipping. This affects all facets.

Entheseal Changes: Neither medial clavicle has fused. The flake is present and fusing on the right clavicle; however, the left flake is present and partially fused but also has a large resorptive lesion in the center of the flake. Bilateral hypertrophy of the costal tuberosity and robusticity of the lateral end of the clavicle. Robusticity is consistent with carrying heavy loads in both hands with arms extended at the sides (Capasso et al. 1999:50). Costal syndesmosis, or hypertrophy of the costal tubercle, is associated with general stress of the pectoral girdle when the shoulders are bent forward moving heavy loads in a bent position. These lesions have been found in agricultural societies in those responsible for ploughing, those carrying heavy weights from the shoulders like stone-house building materials, and hunting. They were also found in individuals from the *Mary Rose* crew. Their rigorous duties included tasks such as repairing canvas masts, use of long bows, and moving cannons (Capasso et al. 1999:52). Musculoskeletal stress markers are moderate to heavy on the clavicle and humerus with minimal changes on the femora.

Burial 9

Burial 9 remains had decayed and there was no evidence of skeletal remains. Casket length suggests an individual under 3–4 years of age.

Burial 9 is southwest of the concrete crypt. Walls of the casket had collapsed first at the footboard, with the side walls second. The resulting shape was unique because it had the appearance of an ichthus or fish. The lid had sunk 17 cm in the center and adhered onto the base of the casket.

Numerous shells and shell fragments were in the fill directly above the casket lid and filling the space between the collapsed walls and lid. Shell, particularly nonlocal clamshell, concentration was approximately 25 percent. No personal artifacts were encountered. Casket and grave shaft lengths are good correlates for the upper age limit of an individual (Condon et al. 1998; Whitley 2013; Whitley and Skinner 2012). This individual is unlikely to have a height greater than the casket or grave shaft length. Therefore, the length of the casket at 96 cm indicates the burial was that of a child under 3 years of age.

Burial Shaft Size and Depth: Rectangular; 126 cm SW/NE, 20 cm in width. Burial depth was 100.6 cm (3.3 feet) to the casket outline and 115.8 cm (3.8 feet) to the base of the casket.

Items of Note in Grave Fill: Clamshell concentration at 25 percent directly on the casket lid and within the collapsed lid and walls of the casket.

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 96 cm SW/NE, 21 cm at the headboard, 21 cm at the shoulders and 18 cm at the footboard.

Casket Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 6 cut nails and 1 ornamental tack

Wood Preservation: Excellent

Personal Items: No

Burial Position/Taphonomy: Unknown

Skeletal Preservation: N/A
Sex: N/A

Age-at-Death: ≤ 3–4 years based on casket length

Stature: N/A

Dental Inventory: N/A

Dental Pathology/Anomalies/Modification: N/A

Pathology: N/A

Entheseal Changes: N/A

Burial 10

Burial 10 is a probable female. Age range could not be determined because of poor preservation of the skeletal remains, and thus this individual could only be identified as an adult.

Burial 10 was one of the last burials excavated. The depth of the burial was very shallow, with sticky clay. Small to medium gravels were in the grave fill, making it difficult to uncover the remains without damaging them. Though the burial extended past the water table, water did not fill the grave while excavating. The sidewalls of the grave shaft were undulating due to the collapse of the casket on top of the remains.

Burial Shaft Size and Depth: Rectangular-rounded; 204 cm SW/NE, 42 cm in width. Burial depth was 143.3 cm (4.7 feet) to the casket outline and 158.5 cm (5.2 feet) to the base of the casket.

Items of Note in Grave Fill: No

Wood Arch: Yes. The bench was rectangular and generally followed the outline of the grave shaft. The arch measured 203 cm SW/NE, 49 cm at the headboard, 45 cm at the shoulders, and 50 cm at the footboard. The wood is well preserved.
Outer Box: No

Casket Description: Rectangular-rounded; 203 cm SW/NE, 41 cm at the headboard, 32 cm at the shoulders, and 32 cm at the footboard.

Casket Painted: No

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: Wire nails

Wood Preservation: Fair

Personal Items: Two shell buttons of indeterminable size and one metal fastener.

Burial Position/Taphonomy: Preservation of the remains is poor and the burial is a single interment. The remains were placed on the back in an extended position. Taphonomic processes resulted in semi-articulation. Arms were semi-flexed at the elbow, with the hands over the pelvic area.

Skeletal Preservation: Poor

Sex: Probable female

Age-at-Death: Adult

Stature: 153.1 cm ± 3.7 cm (5'.3")

Dental Inventory: Maxillary and mandibular incisors right and left I1 and I2, and the right C are present.

Dental Pathology/Anomalies/Modification: Severe attrition with exposure of secondary dentin on all incisors and canines is present. Wear is extensive enough to leave only two-thirds of the root. Maxillary right C and I2 have crown present. The right I2 is worn flat, leaving approximately one-eighth of the crown. The right C has angled wear, leaving about one-half of the distal portion of the crown and wear to two-thirds of the root.

Pathology: Medial line of the right femoral linea aspera has sclerotic and woven bone with clocoa consistent with acute osteomyelitis. The clocoa drains in a superior direction. The lesion is 62.3 mm superior-inferior and 11.9 mm medial-lateral. Active periostitis is present on the right radial tuberosity.

Entheseal Changes: General humeral hypertrophy expressed as a level 2 is present on the right humerus. The right radius and ulna have general hypertrophy as well, suggesting moderate to heavy use of the arms. The femora have barely discernable entheseal changes. This suggests more use of the arms than legs.

Burial 11

Burial 11 contains the remains of a juvenile approximately 6 years of age.

Burial 11 was located near Burials 6 and 9. The surveyor took depths to the top of the grave shaft. Scraping of the area and complete removal of the burial area had to occur before the surveyor was able to take a depth. The depth of the burial was similar to that of Burial 9. Coffin shape is a true tapered coffin, though the footboard appears more consistent with a mummy coffin due to coffin collapse. This burial has a viewing window, ovoid in shape and extending to the lower chest area. The viewing window was covered by a lid and was clearly visible due to the wood grain. Unfortunately, the window did not survive in one piece. The coffin slumped to the west with the viewing window tilted to the base of the coffin. The skull was pushed against the east wall of the coffin. Button alignment suggests the body shifted to the east side of the coffin. Both femora rolled laterally losing articulation with the pelvis. Four coffin handles, five thumbscrews, and three escutcheons were affixed to the coffin. The thumbscrews had "At Rest" inscribed and the escutcheons had crosses. A nameplate at the waist read "Our Darling" and a gold plated "Papa's Pride" nameplate was affixed to the headboard of the coffin. Shell was concentrated directly on the lid. The small- and medium-sized oyster shell comprised 40 percent of the sediment.

Burial Shaft Size and Depth: Rectangular; 150 cm SW/NE, 62 cm wide; depth 100.6 cm (3.3 feet) to the top of the grave shaft and approximately 115.8 cm (3.8 feet) to the bottom of the coffin.

Items of Note in Grave Fill: Shell concentration of small oyster shells at 40 percent. The shell lay only directly on the lid and was not in the grave fill.

Wood Arch: No

Outer Box: No

Coffin Description: Toe pincher; 111 cm SW/NE; 25 cm at the headboard, 28 cm at the shoulders, and 6 cm at the footboard. Sidewalls have collapsed slightly and toe pincher shape is more visible at base of coffin.

Coffin Painted: No

Viewing Window: Ovoid; long axis 38 cm, 20 cm in width at base, and 10 cm at top

Hardware: Yes

Mortuary Artifacts: "Papa's Pride" gold-plated nameplate, measuring 3.5 cm long, affixed to the headboard

Wood Preservation: Excellent

Personal Items: One shell button of unknown size was located at the feet, but it fragmented during removal. Three Prosser buttons, 12 mm (18 lines), were aligned along the torso from the waist angled toward the skull, and another was found at the pelvis. A 13-mm (20 lines) Prosser button was at the right hip.

Burial Position/Taphonomy: The body was placed on the back as a single interment. The remains were semi-articulated because the torso and skull had been shifted east, either due to movement while burying or collapse of the coffin. The placement of the buttons in alignment suggests the body was shifted east while the tissue was still intact and could pull the clothing with the remains. The body was laid in an extended position with a cranium–pelvis orientation of southwest for the head and northeast for the feet. The arms were extended but bent at the elbows with hands over the opposite hip.

Skeletal Preservation: Fair to good condition

Sex: Unknown

Age-at-Death: 5–7 years, dentition indicate 5.8–6.2 years

Stature: N/A

Dental Inventory: Missing deciduous teeth were shed naturally. The teeth present include the mandibular right and left dM2, dM1, C, and left I1. Mandibular deciduous dentition includes right and left dM2, dM1, C, right I2. Permanent teeth include maxillary right and left M1, PM1, left PM2, right and left C, I1, and I2. Mandibular permanent dentition present is the right and left M2, M1, PM1, PM2, C, I2, and left I1. None of the permanent teeth is completely developed. Several are still in the tooth crypt.

Dental Pathology/Anomalies/Modification: Interproximal caries are present on the medial and distal surfaces of the left maxillary M1. No caries have developed on the permanent teeth. Both upper incisors have dental hypoplasia at 6.2 mm and 4 mm from the cemento-enamel junction. The lower right canine has a hypoplasia at 2.8 mm. Incisor hypoplasia occurred at approximately 1.7 and 2.7 years. The lower canine hypoplasia occurred around 4.9 years. The hypoplasia indicates multiple insults to the health of this individual numerous times before death around 6 years of age.

Pathology: No observed pathological changes.

Entheseal Changes: N/A

Burial 12

Burial 12 contains the remains of an infant aged 3–6 months.

Burial 12 was one of the last few burials to be found. The burial was in the farthest north row of the cemetery near the gates. This burial was not excavated very deeply and was at the same level as many of the other infant and juvenile graves. Many adults were excavated to a lower depth, indicating differences in grave depth between adults and juveniles and infants. This burial has an arch with a root throughout the grave shaft and some bioturbation. Upon encountering the lid of the casket, it appeared to be a tapered coffin; however, the sides of the casket had collapsed creating a false shape. Shell fragments and a whole shell were found in the grave shaft along with scattered glass fragments. The burial had slumped to the west side, making it difficult to locate and excavate the remains. Much of the skeletal elements adhered to the casket wood, and planks from the base of the casket were removed while water screening. The remains had a dark metallic sheen, almost opalescent.

Burial Shaft Size and Depth: Rectangular; 140 cm SW/NE, 75 cm wide; depth 97.5 cm (3.2 feet) to the top of the grave shaft and approximately 121.9 cm (4.0 feet) to the bottom of the coffin.

Items of Note in Grave Fill: Shell and glass fragments were in the grave fill. During excavation, five to six large clamshell fragments and one whole shell were found. The glass fragments, as well as the shell, were found scattered near the top of the casket. These were near or on the grave arch.

Wood Arch: Rectangular/Rectangular-rounded; 140 cm SW/NE, 46 cm head, 46 cm shoulders, 30 cm foot.

Outer Box: No

Casket Description: Rectangular; 85 cm SW/NE; 16 cm at the headboard, 19 cm at the shoulders, and 8 cm at the footboard. Collapsed sidewalls have slightly warped the casket.

Casket Painted: No

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: 21 cut nails. Thin copper sheeting was observed in the burial near the upper chest area. The sheeting was very thin and crumbled upon contact. It was impossible to discern what it was, whether it was part of the coffin hardware or perhaps had a personal use. Defining its placement within or on top of the casket could not be determined either.

Wood Preservation: Excellent

Personal Items: At the waist, a safety pin fragment was found at the sacrum indicating the infant was buried in a diaper. Numerous buttons were found along the centerline suggesting the infant was buried in a dress. Seven Prosser buttons were found in alignment from the neck to the waist including one 10-mm (16 lines) button, four 9-mm (14 lines) buttons, and two 7-mm (12 lines) buttons. Buttons were found on the right side of the body and it is unclear why there were numerous buttons on the right side with no correspondence of numbers on the left. Prosser buttons in Area B include three 9-mm (14 lines) and one 7-mm (12 lines) specimens. Two buttons were found during screening: one 7 mm (12 lines) and one 9 mm (14 lines).

Burial Position/Taphonomy: The remains were in poor condition and difficult to identify because they were adhering to the wood. Much of the wood was removed for flotation in the lab. The button alignments provided clues as to how the body was deposited. This was a single interment with the body laid on the back in an extended position. Some of the burial was disturbed. The head-to-foot orientation was southwest to northeast.

Skeletal Preservation: Poor; very few bones were recovered.

Sex: Unknown

Age-at-Death: 3–6 months

Stature: N/A

Dental Inventory: Deciduous teeth include maxillary right and left M2, M1, C, I2, I1, and mandibular right M2, right and left M1, and the right I2. None was fully developed and the tooth length was used for aging. The pars basilaris also identified the age at 5–8 months.

Dental Pathology/Anomalies/Modification: No

Pathology: No observed pathological changes.

Entheseal Changes: N/A

Burial 13

Burial 13 contains the remains of an adult that is probably a male.

Burial 13 was along the most southern row of burials in the cemetery. The backhoe scraped the sediments to the outline of the coffin. No outer box or grave arch was present, and the depth from the coffin outline to uncovering the full lid was only 7 cm. No coffin hardware was found with this burial. A lead ovoid slug was in the skull cavity. Crania fragments exhibited no evidence of trauma or bullet wounds. Postmortem breakage of the skull provides evidence the slug entered the cavity during decomposition.

Burial Shaft Size and Depth: Hexagonal; 195 cm SW/NE, 60 cm wide; depth 112.8 cm (3.7 feet) to the top of the grave shaft and approximately 128 cm (4.2 feet) to the bottom of the coffin.

Items of Note in Grave Fill: No

Wood Arch: No

Outer Box: No

Casket Description: Hexagonal; 180 cm SW/NE; 39 cm at the headboard, 50 cm at the shoulders, and 25 cm at the footboard. Sidewalls had collapsed and extended over the left and right upper arms at the elbows.

Casket Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 43 cut nails of varying sizes

Wood Preservation: Good

Personal Items: One ovoid lead slug of unknown origin measuring 36.8 mm in length, 24 mm in width at the widest point, and 4.0-4.1 mm in thickness lay in the skull. This lead slug weighed 28 grams. At the lower abdomen were two plain Prosser buttons, 14 mm (22 lines). One four-hole sew-through iron button, 12 mm (18 lines) with a metal ring around the outer margin of the button, was located in Area B on the center of the right ilium.

Burial Position/Taphonomy: The remains lay in an extended position as a single, articulated interment. The cranium–pelvis orientation was SW/NE with the skull in the southwest. The head was turned to the right. The arms were folded with the left hand on the left innominate and the right hand at the waist.

Skeletal Preservation: Fair to Good

Sex: Probable male

Age-at-Death: Adult

Stature: N/A

Dental Inventory: The permanent dentition present consists of maxillary right and left I1, right C, right PM1, left PM2, and right and left M1, M2, and M3. Mandibular teeth present include right I2, right and left C, PM1, PM2, right M1, right and left M2, and M3.

Dental Pathology/Anomalies/Modification: Moderate to heavy dental calculus is present on all teeth. The dental calculus extends onto the root. Some calculus deposits extend half way up the root. Postmortem damage to the enamel is evident on several molars. Small caries at the cemento-enamel junction are on the mandibular right M1 and left M3, and maxillary right PM1.

Pathology: A healed lesion, probable sharp force trauma, is on the lateral side of the right tibia on the acruate line. The healed lesion is 33.8 mm proximal-distal, 9.2 mm anterior-posterior, and extends 5.1 mm from the bone.

Entheseal Changes: N/A

Burial 14

Burial 14 contains the remains of an adult male 55–60+ years of age. Transitional analysis indicates a maximum likelihood of 76 years of age.

Burial 14 was west of Burial 13. The backhoe cut into this grave when scraping, and the left portion of the skull and part of the left humerus were removed. The grave shaft was difficult to identify, and only limited burial container wood was preserved. Small remnants of the container are present on the west side, though it is faint. No container wood remained at the base or on the east half of the container. Although the skull was crushed, the remaining skeletal elements were in good condition, and thin copper plating, approximately 15 cm wide, ran across the chest from the left distal humerus to the right shoulder. The copper plating is thin and crumbles when touched.

Burial Shaft Size and Depth: Rectangular; 220 cm SW/NE, 67 cm wide; depth 106.7 cm (3.5 feet) to the top of the casket and approximately 121.9 cm (4.0 feet) to the bottom of the crushed casket.

Items of Note in Grave Fill: No

Wood Arch: No

Outer Box: No

Burial Container Description: Unable to determine; most of the container is unobservable.

Burial Container Painted: Unobservable

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: 52 cut nails

Wood Preservation: Poor

Personal Items: Seven buttons of varying sizes and compositions were found across the grave. Two Prosser buttons size 12 mm (18 lines) and one copper button 15 mm (24 lines) were located at the right arm. Four additional buttons were found during screening. Two japanned bar buttons are copper; one with a diamond-shaped pattern 15 mm (24 lines), and a second with no identifiable design 15 mm (24 lines). Japanned buttons typically had black paint as the background to any design. A third metal button of iron, the size of which could not be determined, and a hard rubber, wedge shank button with an iron inlay design, size of 14 mm (22 lines), were also present.

Burial Position/Taphonomy: The burial is a single interment, articulated, and in an extended position. The arms were semi-flexed with the hands crossed at the pelvic region.

Skeletal Preservation: Fair to Good

Sex: Probable male

Age-at-Death: 55–60+; transitional analysis suggests a maximum likelihood of 76 years

Stature: 176.8 cm ± 3.3 (5' 9.6")

Dental Inventory: Much of the facial bones, maxilla, and mandible were disturbed by the backhoe. Only a few teeth were recovered, and it is not clear whether most were lost due to the scraping. The teeth present are the right maxillary I1 and left M3.

Dental Pathology/Anomalies/Modification: The right maxillary I1 has lingual grooving at the cemento-enamel junction that extends on the crown and root. In the center of the groove is a cemento-enamel junction carie. The lingual side of the tooth is also polished. Three vertical grooves are on the labial side of the tooth extending almost to the cemento-enamel junction. Dental calculus is present on I1 and M3, and M3 has a cemento-enamel junction carie on the buccal side of the tooth.

Pathology: Schmorl's nodes affect thoracic vertebrae 8, 9, and 10, and eburnation, porosity, and lipping are present on the transverse process facet on ribs 8, 9, and 10. Three types of Schmorl's nodes are present. Thoracic 8 has inferior herniation of the nucleus pulposa with posterior crossing of the annulus fibrosus. Thoracic 9 has inferior and superior herniation with postero-lateral crossing of the annulus fibrosa. Thoracic 10 has superior herniation with posterior crossing and inferior intraspongious herniation. Schmorl's nodes occur with the vertebral column being continuously flexed and bending laterally while lifting heavy objects. General stress, such as farming, can result in these changes (Capasso et al. 1999:38).

Entheseal Changes: Eburnation and lipping greater than two-thirds of the circumference is present on the head of the right and left femora, left and right semilunar notch with porosity, and the surfaces of the distal tibiae, talus, and talar facet on the calcaneus. The left carpals have lipping on all articular surfaces. The right and left femora exhibit an enlarged femoral head at the anterior-superior border convexity. Collapse of the calcaneus at the talar facet has led to the talus tilting anteriorly and inferiorly into a cupped area of the calcaneus. The facet has depressed 2.3 mm. An olecranon spur is present on the right olecranon process and extends 4.9 mm. The olecranon spur is termed a woodcutters lesion by Capasso et al. (1999). This occurs when stress is placed on the triceps brachii while the arm is being extended and flexed. Such changes have been found in occupations such as woodcutting, quarrying, and blacksmithing.

The extension of the femoral head is consistent with an individual squatting or sitting cross-legged (Capasso et al. 1999:103). It will occur with any activity requiring hyperdorsiflexion of the ankle and hyperflexion of the knee and hip.

Burial 15

Burial 15 is the grave of a 4–7-month-old infant.

Burial 15 was one of the last burials excavated. The burial was shallow compared to most of the other burials and was decorated with thumbscrews, tacks, copper sheeting, and a nameplate. The nameplate reads "Our Darling." Bioturbation and potential movement by the water table disturbed the remains, resulting in the vertebrae found near the top of the skull and lower right area of the burial. Fifteen to twenty mussel shell fragments and four whole mussel shells were encountered in direct contact with the outer box. Shells were also found in the grave shaft above the burial between the outer box and casket.

Burial Shaft Size and Depth: Oval; 95 cm SW/NE, 50 cm wide at the widest point; depth 109.7 cm (3.6 feet) to the outer box outline and 131.1 cm (4.3 feet) of the base of the casket.

Items of Note in Grave Fill: Mussel shell fragments and whole mussel shell.

Wood Arch: No

Outer Box: Rectangular; 80 cm SW/NE, 35 cm headboard, 34 cm shoulders, and 34 cm footboard

Casket Description: Rectangular; 75 cm SW/NE, 20 cm headboard, 19 cm shoulders, 20 cm footboard

Painted: No

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: Wire nails, tacks, and copper sheeting. Thin copper sheets were at the chest near the "Our Darling" nameplate.

Wood Preservation: Good

Personal Items: Three plain 1-mm (16 lines) Prosser buttons

Burial Position/Taphonomy: The remains were in fair to good condition. The infant was laid on the back, though much of the remains were disarticulated or disturbed. The original position was extended. The arms were disturbed and hand placement could not be identified.

Skeletal Preservation: Fair to Good

Sex: Unknown

Age-at-Death: 4–7 months

Stature: N/A

Dental Inventory: Little bone survived excavation due to friability. The teeth were in excellent condition. No permanent teeth were located, though all but the right maxillary I1 and right mandibular I2 were present. The left mandibular M1 and M2 were in the tooth crypt and thus no measurements or other observations could be made.

Dental Pathology/Anomalies/Modification: None observed

Pathology: None observed

Entheseal Changes: N/A

Burial 16

Burial 16 is the grave of an infant 32 weeks to term.

Burial 16 was found in the group of graves near the brick gate to the cemetery. The burial is at a shallow depth, similar to the other infants at the cemetery. This burial was impacted by the backhoe, with a small portion of the southwest end of the casket removed. The grave was dug into sandy loam sediments. Differentiation between the arch, outer box and casket was the presence of nails at the outer box. These nails were only found below the wood arch. The outer box and casket could be differentiated due to the presence of the red paint on the casket, the presence of hardware, and a small amount of sediment. The casket had collapsed and mounded over the remains.

Burial Shaft Size and Depth: Rectangular; 88 cm SW/NE to cut edge, 60 cm wide; depth 88.4 cm (2.9 feet) to the outer box outline and 109.7 cm (3.6 feet) of the base of the casket.

Items of Note in Grave Fill: Mussel shell was in the fill directly on top of the arch. Nine large complete clamshells and one fragment of a clamshell were placed directly on the arch lid. A small fragment of orange pottery, similar to terracotta, was also placed on the bench. This pottery matches the pottery fragments found in Burial 25.

Wood Arch: Rectangular; 88 cm to cut edge; 60 cm at headboard, shoulders, and footboard

Outer Box: Rectangular; 59 cm to cut edge, 29 cm at headboard, shoulders, and footboard

Casket Description: Rectangular; 59 cm to cut edge; width is indeterminate due to collapse of the coffin lid.

Painted: Red

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: Cut nails

Wood Preservation: Good

Personal Items: One safety pin 2.6 cm long and a straight pin 2.4 cm long.

Burial Position/Taphonomy: The remains were in fair to good condition. The long bones were extremely friable; however, the vertebrae and metacarpals were in excellent condition. The body was laid on the back in an extended position. Knees were semi-flexed with the arms tightly flexed. Though the humeri, radii, and ulnae had fragmented to the point of being unidentifiable, the metacarpals and phalanges of both hands were perfectly preserved, laying on the location of the sternum indicating the hands were placed on the chest, and the arms were tightly flexed.

Skeletal Preservation: Poor to Good

Sex: Unknown

Age-at-Death: 32 weeks to term

Stature: N/A
Dental Inventory: None present

Dental Pathology/Anomalies/Modification: N/A

Pathology: None observed

Entheseal Changes: N/A

Burial 17

Burial 17 is the grave of a child 4 ½ to 5 ½ years old.

Burial 17 contained a large casket thought to contain an adult based on its size. The grave was located on the southernmost row of graves. Little sediment had to be removed to expose the lid of the casket, suggesting no outer box was present. The casket was painted white. Due to the poor condition of the remains, the bones and sediment had to be removed and screened. At some point, the casket had filled with ground water because much of the remains were not articulated. The left femur shifted toward the left side of the casket at an angle.

Burial Shaft Size and Depth: Rectangular; 140 cm SW/NE, 30 cm wide; depth 91 cm (3.0 feet) to the casket outline and 109.7 cm (3.6 feet) of the base of the casket.

Items of Note in Grave Fill: None observed

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 134 cm to cut edge, 38 cm headboard, 36 cm shoulders, 32 cm footboard.

Painted: White

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: Cut nails

Wood Preservation: Good

Personal Items: Two plain Prosser buttons were present in the grave. A 12-mm (18 lines) button was found during flotation from the skull area, and a second Prosser, 10 mm (16 lines), was at the distal sternum.

Burial Position/Taphonomy: The remains were in poor condition, though it was evident the body had been placed in an extended position on the back, with most of the remains articulated.

Skeletal Preservation: Poor to Fair

Sex: Unknown

Age-at-Death: 4 ½ to 5 ½ years

Stature: N/A

Dental Inventory: Deciduous and permanent dentition was present. Deciduous dentition includes maxillary right and left M2, C, I2 and I2; and mandibular right and left M2, M1, and I1. Permanent dentition exhibits no root development on any teeth, and the maxillary right and left M1, right I1, and left PM1 are present; along with the mandibular right and left M1, and left PM1 and I1.

Dental Pathology/Anomalies/Modification: One linear enamel hypoplasia was found at 4 mm from the cemento-enamel junction. The age of insult for the hypoplasia is 2.7 years. Permanent maxillary right I1 is shoveled, level 3.

Pathology: None observed

Entheseal Changes: N/A

Burial 18

Burial 18 is the grave of a child 3–5 years.

Burial 18 was one of the northernmost graves in the cemetery, next to the cemetery gates. The casket was very large and adult-sized. The depth from the casket outline to exposing the arch was 40 cm, requiring a significant amount of sediment removal. Once removal of the overburden was complete, groundwater inundated the grave shaft. Removal of the arch and casket lid did not improve the situation. A wet/dry vacuum was used to remove the water and clay slurry to continue exposure of the remains. The bottom of the burial was scraped to sterile to ensure no remains or artifacts were present. The upper half of the burial, Areas A, B, and C, were sectioned into six subareas. Each area was excavated separately, and the water and slurry screened independently,

with Areas A and B screened by the six subareas. Water infiltration due to the level of the water table significantly disturbed the remains.

Burial Shaft Size and Depth: Rectangular; 170 cm SW/NE, 98 cm wide; depth 125 cm (4.0 feet) to the arch outline and 173.7 cm (5.7 feet) to the base of the casket.

Items of Note in Grave Fill: None observed

Wood Arch: Rectangular; 148 cm SW/NE, 85 cm headboard, 90 cm shoulders, 72 cm footboard

Outer Box: No

Casket Description: Rectangular; 124 cm SW/NE, 40 cm headboard, 40 cm shoulders, 42 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: Cut nails

Wood Preservation: Good

Personal Items: Numerous buttons were found in the burial. Subarea 5 produced the most, two shell and five Prosser buttons. Subarea 6 had three buttons, two found during screening; two were Prosser buttons and one was shell. Sizes in Subareas 5 and 6 were not collected. The three buttons in Subarea 4 were two Prosser 15 mm (24 lines) and one two-hole shell that was fragmentary and could not be measured. Another 15-mm (24 lines) Prosser button was in Subarea 3 and in Area A, in the skull area. A single 10-mm (16 lines) button was found during screening.

Burial Position/Taphonomy: Water infiltrating the grave due to the water table levels shifted the remains within the casket, displacing most remains to the southwest portion of the casket.

Skeletal Preservation: Fair to Good

Sex: Unknown

Age-at-Death: 3–5 years

Stature: N/A

Dental Inventory: Deciduous and permanent dentition was present. Deciduous dentition included maxillary right and left M2, M1, I1 and left C; and mandibular right and left M2 and right I1. Permanent dentition exhibits no root development on any teeth. The maxillary right and left M1, and left I1 are present; along with the mandibular right and left M1, C, and left I1.

Dental Pathology/Anomalies/Modification: None present

Pathology: None observed

Entheseal Changes: N/A

Burial 19

Burial 19 is the grave of an adult, probably a male.

Burial 19 lay in the center of the cemetery. Wood preservation was excellent and the last plank of the arch near the footboard was pulled out intact by the backhoe. The burial was deep and below the water table. It was the deepest grave shaft in the cemetery. Water continually filled the grave, requiring the use of a wet/dry vacuum to remove the water so the bones were visible. Given the very sticky texture of the soil that created a situation in which small bones and any potential personal items could not be left in situ, removal of as much of the water and sediment as possible via wet-dry vacuum occurred. This proved to be an effective method for excavation; however, water would quickly fill the grave and move smaller bones and teeth. The sediments and water were removed per burial area: A, B, C, D, and E. Each area was screened separately. Due to the thick, sticky clay and the fragmentary and friable condition of the skull, it was removed as a solid mass and screened. Body length in the grave measured 171 cm. Most epiphyses of the long bones are missing, precluding measurements.

Burial Shaft Size and Depth: Rectangular; 262 cm SW/NE, 125 cm wide; depth 122 cm (4.0 feet) to the arch outline and 185.9 cm (6.1 feet) to the base of the casket.

Items of Note in Grave Fill: One glass bottle base was found in Area D, and one olive glass fragment in Area A was near the top of the arch. The overburden contained a few (5–10) mussel shell fragments, and fragments were also found close to the arch.

Wood Arch: Rectangular; 229 cm SW/NE, 89 cm headboard, 93 cm shoulders, 95 cm footboard.

Outer Box: No

Casket Description: Rectangular; 188 cm to cut edge, 55 cm headboard, 63 cm shoulders, 44 cm footboard.

Painted: No

Viewing Window: No

Hardware: 3 lining tacks, 1 ornamental tack, and 1 thumbscrew

Mortuary Artifacts: Wire nails

Wood Preservation: Excellent

Personal Items: Three Prosser buttons found during screening and one pants or vest buckle.

Burial Position/Taphonomy: Burial 19 is a single burial with the body placed on the back. Both femora rolled laterally, with the femoral heads out of the sockets. The body was extended with the arms flexed at the elbow, right hand at the waist, and left hand over the right hip. Cranial–foot orientation was southwest to northeast, with the head in the southwest.

Skeletal Preservation: Fair to Good

Sex: Probable male

Age-at-Death: Adult

Stature: 171 cm (5' 7") based on body length in casket

Dental Inventory: Dentition includes maxillary left M3, right and left M2, M1, PM2, left P1, right and left C, and left I1. Mandibular teeth present are right M3, right and left M2 and M1, right PM2 and PM1, and left I2.

Dental Pathology/Anomalies/Modification: Most of the teeth present have moderate to heavy wear, scoring 5 or higher. The molars exhibit moderate wear, scoring 2–5 per cusp. Interproximal caries affect the mesial surface of the right maxillary C; distal mandibular left M1, and mesial M2. Moderate levels of calculus are present on the molars and on the labial side of the first maxillary incisor. Active periodontal disease affected the maxilla, though resorption was minor.

Pathology: Circumferential osteophytes are on the atlas facet. Eburnation is present without porosity. Osteophytes on the left anterior body of lumbar 4, less than one-third, extend 8.3 mm.

Entheseal Changes: N/A

Burial 20

Burial 20 is the grave of a juvenile 7–9 years of age.

Burial 20 was dug below the current water table. Thirty centimeters of water flooded the grave shaft. The remains are heavily disturbed within the casket. The left leg was completely disarticulated with the femur across the chest, ribs shifted to the right side of the burial, and the teeth scattered in areas A, B, and C. Few nails were observed in situ due to the mud and water. The coffin wood was very well preserved.

Burial Shaft Size and Depth: Rectangular; 190 cm SW/NE, 78 cm wide; depth 131.1 cm (4.3 feet) to the arch outline and 182.9 cm (6.0 feet) of the base of the casket.

Items of Note in Grave Fill: No

Wood Arch: Rectangular; 190 cm SW/NE, 78 cm headboard, 82 cm shoulders, 79 cm footboard

Outer Box: No

Casket Description: Rectangular; 160 cm SW/NE, 40 cm headboard, 40 cm shoulders, 40 cm footboard.

Painted: No

Viewing Window: No

Hardware: Yes
Mortuary Artifacts: Cut nails

Wood Preservation: Excellent

Personal Items: Twelve Prosser button were found scattered throughout the burial. Areas B and C each had six 17-mm (26 lines) and six 10-mm (16 lines) buttons.

Burial Position/Taphonomy: Burial 19 is a single interment that was initially laid on the back in an extended position. The bones are both semi-articulated and disturbed. Both arms and hands are extended along the sides of the body.

Skeletal Preservation: Fair to Good

Sex: Unknown

Age-at-Death: 7–9 years

Stature: N/A

Dental Inventory: The few deciduous teeth include the maxillary right M2 and mandibular M3. Permanent dentition includes maxillary right and left M2, M1, right PM1, PM2, left and right C, left I2, and right and left I1. Mandibular teeth include right M2, M1, right and left PM2, C, I2, and I1.

Dental Pathology/Anomalies/Modification: Large occlusal caries are on the left maxillary M1. Numerous hypoplasia, canines with multiple hypoplasia, indicate periods of stress at the ages 2–2 years 3 months, 3, 4, and 4 years 6 months.

Pathology: None observed

Entheseal Changes: N/A

Burial 21

Burial 21 is the grave of a preterm infant 30 weeks to term, though no remains were preserved. Age is based on casket length.

Burial 21 was east of Burials 13 and 14. Neither the wood nor the remains were well preserved, and no remains were located, even during screening. The size of the grave shaft and the casket are very small, and the lid of the casket did not survive. As with Burials 13 and 14, this grave was very

shallow with little overburden needing to be removed. The lack a lid was noted when a button was encountered before casket wood. Two fragments of cloth were found at the footboard and were photographed in the field.

Burial Shaft Size and Depth: Irregular; 72 cm SW/NE, 52 cm wide at headboard, 35 cm at footboard; Depth 109.7 cm (3.6 feet).

Items of Note in Grave Fill: No

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 45 cm SW/NE, 31 cm headboard, 31 cm shoulders, 32 cm footboard.

Painted: No

Viewing Window: No

Hardware: Yes: friable and fragmentary nameplate that crumbled upon touching

Mortuary Artifacts: Cut nails, wire nails, and screws

Wood Preservation: Poor

Personal Items: Four Prosser two-hole buttons, 9 mm (14 lines), were found near the nameplate.

Burial Position/Taphonomy: Unknown

Skeletal Preservation: Poor; no remains preserved

Sex: Unknown
Age-at-Death: 30 weeks to term

Stature: N/A

Dental Inventory: N/A

Dental Pathology/Anomalies/Modification: N/A
Pathology: N/A

Entheseal Changes: N/A

Burial 22

Burial 22 is the grave of a male 45–55 years. Transitional analysis suggests a maximum likelihood of 55.4 years.

Burial 22 was excavated from a grave shaft that was a large rectangle. The shaft was approximately the bucket width of a backhoe, about 4 feet, and the initial assessment was that the area could be a mass grave. Scraping only revealed the metal coffin. The discovery of the coffin occurred when the backhoe clipped the lid at the headboard. The metal coffin was partially complete. The lower half of the coffin was crushed toward the right side of the body, trapping the tibia and several tarsals underneath the bent metal. Though the coffin was bent, it was able to be moved in one piece. It is unknown if the viewing window broke during the initial damage to the coffin or when the backhoe lifted the lid.

Burial Shaft Size and Depth: Irregular-rectangular; 212 cm SW/NE, 110 cm wide; Depth 79.2 cm (2.6 feet) to the base of the grave shaft.

Items of Note in Grave Fill: Brick fragments, china bowl or teacup with pink decorations, and white milk glass fragment similar to a vase.

Wood Arch: No

Outer Box: Unknown shape; the outer box was only observable on the east portion of the coffin because of a thin wood outline and nails.

Coffin Description: Tapered; 184 cm SW/NE, 20 cm headboard, 54 cm shoulders, 20 cm footboard. Coffin wall thickness measured at 9.3 mm.

Painted: No

Viewing Window: Ovoid, approximately 30 by 48 cm. The glass was 7.3 to 7.5 mm thick and had a green tint.

Hardware: Metal coffin with viewing window. Twenty decorative lid fasteners closed the lid to the base of the coffin. Six coffin handles adorned the coffin.

Mortuary Artifacts: Cut nails

Wood Preservation: Poor

Personal Items: One fragmented iron button was found during screening. Neither the style nor markings could be identified.

Burial Position/Taphonomy: Semi-articulated and disturbed in an extended position. In situ remains were extended, with the head at the southwest. Both arms were extended with the hands at the thighs.

Skeletal Preservation: Fair to Good

Sex: Male

Age-at-Death: 45–55 years; transitional analysis 22–90 years with maximum likelihood of 55.4 years

Stature: 170.6 cm ± 4.1 cm (5' 7")

Dental Inventory: Preservation of the maxilla and mandible allowed observations of premortem and postmortem loss. The following teeth were lost premortem, with the socket resorbing: maxillary right and left M3, left M2, and M1, right I1 and left C, and right and left PM2 and PM1; and mandibular left M1 and M2; right M3, M2, M1, left PM1, and right and left PM2, I2, and I1.

Dental Pathology/Anomalies/Modification: Interproximal caries were most frequent. Access to dental care is evident by the gold fillings in the left maxillary I1. Two caries, one mesial and one distal, were filled; the mesial had a gold filling with the filling still present. Another type of metal, possibly an amalgam, was in the right M1. Interproximal caries are in the mesial maxillary I2, right mesial and distal I2, distal C; and mandibular distal C. A large occlusal carie resulted in destruction of greater than one-third of the crown. Evidence of drilling or smoothing of the carie area was absent on these teeth.

Pathology: Generalized physical stress is evident in the presence of Schmorl's nodes on thoracic vertebrae 9, 10, 11, and 12. Schmorl's nodes are present on the superior and inferior body surfaces. Thoracic 11 has an intra-canalar herniation with the herniation extending posterior. Herniation of thoracic 10 extends postero-lateral. According to Capasso et al. (1999:38), this is the only type capable of causing nerve root compression and pain.

Entheseal Changes: Pectoralis major and teres major have heavy musculoskeletal stress markers at level 3.5. These lesions are resorptive. The brachioradialis origin, flexor pollicis longus origin, brachialis insertion, and anconeus insertion have moderate (level 2 to 2.5) entheses.

Taphonomy: Rust from the metal coffin resulted in orange stains on the bone. Stains are spotty in some areas, particularly on the innominates, creating a cheetah-like pattern.

Burial 23

Burial 23 contained no skeletal remains. Casket length suggests the individual was less than 13 months of age.

Burial 23 was in a row of infants. The grave shaft was irregular, and the initial outline of the casket was very evident. As the overburden was removed, the casket wood outline ended after .5 cm. The outline of the casket was identified by the placement of wire nails. The base of the grave was a gravel clay base. Neither lid nor casket base was preserved. Age of the individual was based upon the length of the casket.

Burial Shaft Size and Depth: Ovoid; 80 cm SW/NE, 39 cm wide; depth 91 cm (3 feet) to the casket outline and 118.9 cm (3.9 feet) to the base of the grave

Items of Note in Grave Fill: No

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 72 cm SW/NE, 30 cm headboard, 32 cm shoulders, 35 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: Wire nails

Wood Preservation: Poor

Personal Items: No

Burial Position/Taphonomy: Unknown

Skeletal Preservation: No remains preserved

Sex: Unknown

Age-at-Death: ≤13 months

Stature: N/A

Dental Inventory: N/A

Dental Pathology/Anomalies/Modification: N/A

Pathology: N/A

Entheseal Changes: N/A

Burial 24

Burial 24 is the grave of a preterm infant 34–36 weeks to term.

Burial 24 was identified by a dark gray sediment that was not much larger than the arch. The arch was painted white and warped 15 cm in depth from the original depth. Upon removal of the arch, casket hardware, including tacks, nails, decorative covers, and "Our Darling" copper nameplate, were exposed. The casket retained its shape except at the southwest corner. Small fragments of fabric were recovered from the chest area, each less than .5 cm in diameter. The casket was painted white, though wood near the sternum was painted brown. Copper fragments whose shape could not be determined were near the footboard. Remains had completely decayed and no fragments were recovered during screening.

Burial Shaft Size and Depth: Rectangular; 86 cm SW/NE, 40 cm wide. Depth 88.4 cm (2.9 feet) to the casket outline and 109.7 cm (3.6 feet) to the base of the grave.

Items of Note in Grave Fill: 2 large mussel shells in the fill

Wood Arch: Same dimensions as grave shaft; painted white

Outer Box: No

Casket Description: Rectangular; 62 cm SW/NE, 21 cm headboard, 19 cm shoulders, 20 cm footboard

Painted: White

Viewing Window: No

Hardware: No

Mortuary Artifacts: 22 cut nails and 10 lining tacks

Wood Preservation: Good

Personal Items: No

Burial Position/Taphonomy: Unknown

Skeletal Preservation: Poor

Sex: Unknown

Age-at-Death: 30 weeks to term

Stature: N/A

Dental Inventory: Left mandibular I1, development 4/5

Dental Pathology/Anomalies/Modification: N/A

Pathology: None observed

Entheseal Changes: N/A

Burial 25

Burial 25 is the grave of a male 25–30 years of age.

Burial 25 was located southwest of Burial 16. The wood arch warped until it contacted the casket lid. The depth created from the warping required the use of a shovel to remove overburden. Overburden removal took approximately 3 hours. Though the wood was in poor condition, the lid

had fused to the bottom of the casket and adhered to the skeletal elements. Once the lid was separated from the base of the casket, the remains were easily exposed. Skeletal elements were black metallic in color and had an opalescent sheen in the spongy bone; the origin of these changes is unclear. The femora had rolled laterally, and the pubic symphyses were easily observed with the left well preserved. Infield analysis of age occurred before any potential damage. Although the remains appeared to be in good condition, the posterior side of the bone in contact with the wood base had flattened and melded into the casket base. Thus, the posterior one-quarter of the skeletal elements was flat. Clear and brown glass fragments were in the grave shaft fill, just above the arch, along with a fragment of orange pottery similar to terra cotta. This pottery matches the piece found in Burial 16. Both of these graves are next to each other.

Burial Shaft Size and Depth: Rectangular; 225 cm SW/NE, 95 cm wide. Depth approximately 91.4 cm (3 feet) to the casket outline and 167.6 cm (5.5 feet) to the base of the grave.

Items of Note in Grave Fill: Brown glass fragment, clear glass fragment, orange terra cotta-like pottery. All close to the arch.

Wood Arch: Rectangular; 196 cm SW/NE, width very irregular.

Outer Box: No

Casket Description: Rectangular; unable to determine exact dimensions.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 63 nails and screws

Wood Preservation: Fair

Personal Items: Personal items consisted of nine Prosser and bone buttons. One dish type 14-mm (22 lines) Prosser button was found during screening. A 10-mm (16 lines) Prosser button was located each at the neck and left wrist, and a 13-mm (20 lines) button was located on the right hip. Two four-hole bone 16.5-mm (22 lines) buttons were on the right hip, and one was on the left. Two four-hole bone buttons, 16.5 mm (26 lines), were in area B. The bone buttons had a divot at the location of a fifth hole instead of a fully drilled hole.

Burial Position/Taphonomy: In situ single interment with very little movement of remains and personal items. The articulated remains were extended with the arms semi-flexed and hands crossed at the chest. Some of the remains in the chest area were disturbed, and the head of the left humerus was at the right wrist, which was still in situ. The head was rotated to the left.

Skeletal Preservation: Fair to Good

Sex: Male

Age-at-Death: 25–30 years

Stature: Approximately 178 cm (5' 10")

Dental Inventory: Maxillary right M3, right and left OM1, right C, right and left I2 and I1. Mandibular right M3, M2, M1, right and left PM2, right PM1, and right and left I2.

Dental Pathology/Anomalies/Modification: Level 8 wear affected the right and left mandibular I2. The maxillary I1 had wear that affected the medial portion of the tooth that was scooped, indicative of artifact use or production.

Pathology: The right distal, third ulnar shaft has healed greenstick fractures. The distal first foot phalange has woven bone and osteophytes extending on the inferior surface forming a bridge from the proximal articular facet to the tip.

Entheseal Changes: Both femora have a mesa-like linea aspera, pilasterism. This may be the result of activities of flexor stress during lifting from a squatting position (Capasso et al. 1999:118).

Developmental Defects: The second and third neural arch of the sacrum exhibit aplasia. The second neural arch completely failed to develop, leaving a hole, and the three failed to develop, though the bone fused.

Burial 26

Burial 26 is the grave of a probable female aged 40–55 years. Transitional analysis indicates a maximum likelihood of 55.2 years.

Burial 26 is an arch burial excavated to beneath the current water table. Water continually filled the casket, requiring removal using the wet/dry vacuum. Sterile soil was visible between the arch and the casket lid, though the layer was thin. The femora are in anatomical position; however, taphonomic processes resulted in the distal tibiae being upside down, with the tibial tuberosity facing the base of the grave. Both the left and right bones of the feet were comingled in the left portion of the grave. The thick clay sediments made it difficult to excavate the remains.

Although the presence of a buckle suggests this individual is male, the greater sciatic notch and distal humeral epicondyle measurement are scored as probable female. The biepicondylar score is 1.6, cutoff 1.51, and the articular width score is 1.81, cutoff 1.51, which both clearly indicate female.

Burial Shaft Size and Depth: Rectangular; 212 cm SW/NE, 82 cm wide. Depth, 118.9 cm (3.9 feet) to the arch outline and 182.9 cm (6 feet) to the base of the grave. Arch outline to top of warped arch was 47 cm.

Items of Note in Grave Fill: Brown and blue glass bottle fragments. The blue glass was the base of a wine bottle.

Wood Arch: Rectangular; 212 cm SW/NE, 81 cm headboard, 81 cm shoulders, 78 cm footboard.

Outer Box: No

Casket Description: Rectangular; 210 cm SW/NE, 41 cm headboard, 47 cm shoulders, 50 cm footboard.

Painted: No

Viewing Window: No

Hardware: Yes

Mortuary Artifacts: 30 wire nails

Wood Preservation: Good

Personal Items: Three piecrust Prosser buttons were found in the screen: two 10 mm (16 lines) and one 12 mm (18 lines). A 7-mm snap fastener and a 1-inch, two-prong pants, vest, or trouser buckle were also found in the screen.

Burial Position/Taphonomy: This is a single, articulated, extended interment placed on the back. The arms are tightly flexed at the elbow with the left hand at the hip and right over the left shoulder.

Skeletal Preservation: Poor

Sex: Female

Age-at-Death: 40–55 years based on auricular surface. Transitional analysis indicates a maximum likelihood of 55.2 years.

Stature: N/A

Dental Inventory: The right mandibular PM2 is present and in the occlusion. All other teeth are missing and any observable bone was fully resorbed.

Dental Pathology/Anomalies/Modification: N/A

Pathology: The left fourth metacarpal has a fully healed greenstick fracture on the palmar side.

Entheseal Changes: Eburnation and spicule formation are present on the atlas dens facet and on the dens of the axis. The right talus, on the proximal edge of the inferior facet, has a large osteophyte extending 10 mm.

Burial 27

Burial 27 is the grave of 3–5-month-old infant.

Burial 27 was found when scraping to remove the concrete crypt, Burial 6. No depth was taken because the grave had to be removed before the surveyor arrived. The grave lid had collapsed on the bone, and the bone was difficult to identify since it was stained the same color as the wood. Bones were friable and crumbled when excavating.

Burial Shaft Size and Depth: Unable to determine

Items of Note in Grave Fill: Small clamshells covered the lid of the grave comprising 50 percent of the matrix.

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 80 cm SW/NE, 25 cm headboard, 25 cm shoulders, 26 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 65 cut nails

Wood Preservation: Good

Personal Items: No

Burial Position/Taphonomy: A single, articulated interment with the body extended and laid on the back. The arms were flexed but the hand location could not be determined.

Skeletal Preservation: Fair

Sex: Unknown

Age-at-Death: 3–5 months
Stature: N/A

Dental Inventory: Left mandibular I1

Dental Pathology/Anomalies/Modification: No

Pathology: No

Entheseal Changes: N/A

Burial 28

Burial 28 is the grave of 3–5-year-old child.

Burial 28 was identified during the overburden removal retained due to the presence of Burials 27, 29, 30, and 31. The burial was excavated below the modern water table and water continually filled the burial. A rainstorm exacerbated this situation. Due to the poor condition of the bone and poor visibility, the remains were removed in bulk and water-screened.

Burial Shaft Size and Depth: Unable to determine; the depth to the top of the coffin was 146.3 cm (4.8 feet) and 161.5 cm (5.3 feet) to the bottom.

Items of Note in Grave Fill: No

Wood Arch: No

Outer Box: No

Coffin Description: Hexagonal; 138 cm SW/NE, 24 cm headboard, 33 cm shoulders, 17 cm footboard

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 48 wire nails

Wood Preservation: Good

Personal Items: No

Burial Position/Taphonomy: A single, articulated interment with the body extended on the back. The arms were flexed, but the hand location could not be determined.

Skeletal Preservation: Fair

Sex: Unknown

Age-at-Death: 3–5 years; metrics of permanent teeth estimate an age of 4.7 years and a hypoplasia occurring about 5 years of age.

Stature: N/A

Dental Inventory: Deciduous maxillary right M2 and M1 and left M2. Deciduous right and left M2 and M1. Permanent teeth include developing maxillary right and left M2 and M1, left PM1, and right C and I1. Mandibular partially developed teeth include mandibular right and left M1, right M2, and left PM1 and I1.

Dental Pathology/Anomalies/Modification: A large occlusal carie is on the deciduous right maxillary M2. Large caries destroyed half of the crown of the deciduous right and left mandibular M2, and the complete crown M1, leaving root exposure. Linear horizontal pits on deciduous left M2 buccal side are carious. Numerous linear enamel hypoplasia are evident on the teeth with maxillary right I1 having three. Ages of insults are 1.3, 2.1, and 3.1 for I1; 3.5 and 3.8 years for the right maxillary C; 5.0 for the left maxillary PM1; and 1.24 for the mandibular left I1. These insults indicate a regular pattern of stress occurring around 1.3, 2, 3, 3.5, 4, and 5 years of age. The many insults on the health of this young child may be correlated to the young age-at-death.

Pathology: No

Entheseal Changes: N/A

Burial 29

Burial 29 is the grave of a fetus aged 32–38 weeks.

Burial 29 was identified during the overburden removal retained due to the presence of Burials 27, 28, 30, and 31. The burial had to be excavated before the surveyor was able to take the depths, so it was measured from the top of the concrete crypt, Burial 6. The footboard and headboard folded toward the center and first appeared to be the base of the casket. Large amounts of oyster shell and clamshell were on the arch. The arch warped east to west as it sank toward the casket. Due to the preservation and sediment texture, the contents of the burial were removed in bulk and water-screened to retrieve the bones of the infant.

Burial Shaft Size and Depth: Rectangular; 60 cm SW/NE, 35 cm wide. The depth to the top of the coffin was approximately 106.7 cm (3.5 feet) and 112.8 cm (3.7 feet) to the base.

Items of Note in Grave Fill: No

Wood Arch: Rectangular-rounded; 60 cm SW/NE, 29 cm width

Outer Box: No

Casket Description: Rectangular; 68 cm SW/NE, 28 cm headboard, 28 cm shoulders, 28 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 48 wire nails

Wood Preservation: Good

Personal Items: No

Burial Position/Taphonomy: A single interment with the body extended on the back. Preservation prevented determining other observations of burial position.

Skeletal Preservation: Fair

Sex: Unknown

Age-at-Death: 32–38 weeks

Stature: N/A

Dental Inventory: Deciduous maxillary right I1

Dental Pathology/Anomalies/Modification: Measurement of I1 at 4.3 mm estimates the infant was 38 weeks. The petrous estimates 32 weeks.

Pathology: No

Entheseal Changes: N/A

Burial 30

Burial 30 is the grave of an infant age 6 months to 1 year.

Burial 30 was identified during the overburden removal at Burial 9 while trying to remove the concrete and brick crypt, Burial 6. This burial was almost directly under Burial 9 and may have been impacted when the grave shaft for Burial 9 was dug. The burial had to be excavated before the surveyor was able to take the depths. The coffin lid was heavily warped, with the wood in fair to poor condition. Excavation revealed the coffin was larger than it appeared because the walls had collapsed; the headboard was absent. Nails and screws were unusually large for this size of grave shaft. The remains were heavily disturbed.

Burial Shaft Size and Depth: Rectangular; 98 cm SW/NE, 38 cm wide. The depth was not determined due to the need to excavate the burial before the arrival of the surveyor. However, the depth of the lid approximates the base of Burial 9.

Items of Note in Grave Fill: No

Wood Arch: Rectangular-rounded; 60 cm SW/NE, 29 cm wide.

Outer Box: No

Coffin Description: Ovoid; 91 cm SW/NE, 18 cm headboard, 20 cm shoulders, 24 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 76 cut nails

Wood Preservation: Good

Personal Items: No

Burial Position/Taphonomy: The interment is a single individual; however, the remains are highly fragmented.

Skeletal Preservation: Poor

Sex: Unknown

Age-at-Death: 6 months to 1 year

Stature: N/A

Dental Inventory: Deciduous maxillary left M1, and mandibular right and left M1 and right I2.

Dental Pathology/Anomalies/Modification: No

Pathology: No

Entheseal Changes: N/A

Burial 31

Burial 31 contained no remains. Age estimation is based on casket length that indicated the individual was no older than 10 months at death.

Burial 31 was in the cluster of child and infant graves surrounding the concrete crypt (Burial 6). The burial had to be excavated before the surveyor was able to take the depths so it was measured from the top of the concrete crypt, Burial 6. The casket was poorly preserved and may have been impacted by Burial 6. Shell concentrations helped define the grave shaft outline. The grave was dug to sterile to look for remains. All sediments were screened. No remains were found.

Burial Shaft Size and Depth: Rectangular; 90 cm SW/NE, 45 cm wide. The depth to the top of the casket was 106.7 cm (3.5 feet) and 112.8 cm (3.7 feet) to the base.

Items of Note in Grave Fill: Shell concentration

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 73 cm SW/NE, 29 cm headboard, 29 cm shoulders, 29 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 2 cut nails

Wood Preservation: Poor

Personal Items: No

Burial Position/Taphonomy: N/A

Skeletal Preservation: Poor

Sex: Unknown

Age-at-Death: ≤10 months, based on casket length

Stature: N/A

Dental Inventory: N/A

Dental Pathology/Anomalies/Modification: No

Pathology: No

Entheseal Changes: N/A

Burial 32

Burial 32 contained the remains of an infant aged 35–40 weeks.

Burial 32 was a child-sized casket with a slightly tapered shape. The grave shaft was only slightly larger than the size of the casket, extending approximately 5 cm on each side of the casket. Shell was on the lid of the casket, and the lid had collapsed with only 0.5–3 cm between the base of the casket and the lid. Skeletal elements were poorly preserved and easily fragmented. Due to the soil texture, photographs could not be taken of the remains because they were not visible. Mapping also proved difficult due to the high fragmentation of the remains.
Burial Shaft Size and Depth: Rectangular; 104 cm SW/NE, 41 cm wide. The depth to the top of the casket was 118.9 cm (3.9 feet) and 137.2 cm (4.5 feet) to the base.

Items of Note in Grave Fill: Shell concentration on lid

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 98 cm SW/NE, 16 cm headboard, 16 cm shoulders, 14 cm footboard

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 13 cut nails; 31 wire nails; 7 nails in the flotation

Wood Preservation: Poor

Personal Items: Incomplete safety pin

Burial Position/Taphonomy: The remains appear to were placed in an extended position with the arms at the side. However, the position is difficult to confirm due to the fragmentary and disturbed condition of the remains.

Skeletal Preservation: Poor

Sex: Unknown

Age-at-Death: 35–40 weeks

Stature: N/A

Dental Inventory: Maxillary left I1 and mandibular left I1

Dental Pathology/Anomalies/Modification: No

Pathology: No

Entheseal Changes: N/A

Burial 33

Burial 33 contained the remains of an infant aged 35–40 weeks.

Burial 33 lid had slumped approximately 10–15 cm from the edge of the casket outline encountered during scraping. A shell layer, approximately 6–12 cm thick, was on top of the casket lid. The lid and base of the casket were fused, but the wood was well preserved and the alternating grains of the wood and wood planks were evident. A gravelly subsoil matrix was on the west side of the casket, with the dark organic soil on the east suggesting the casket lay directly against the grave shaft in the west. The casket was larger than needed for the size of the child. Though the remains were in fair to good preservation, they were tightly fused to the wood. Femora were fused to the wood and were measured in the field before removal. Similar to other remains in the cemetery, these were black and had a shiny metallic subsistence adhering to them.

Burial Shaft Size and Depth: Rectangular; 128 cm SW/NE, 53 cm wide. The depth to the top of the casket was 94.5 cm (3.1 feet) and 149.4 cm (4.9 feet) to the base.

Items of Note in Grave Fill: Shell concentration on lid

Wood Arch: No

Outer Box: No

Casket Description: Rectangular; 110 cm SW/NE, 36 cm headboard, 35.5 cm shoulders, 35 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 48 wire nails

Wood Preservation: Poor

Personal Items: Three Prosser buttons were found during water screening: two Prosser four-hole piecrust buttons 10 mm (16 lines) and one Prosser four-hole dish 10 mm (16 lines). Small wire fragments less than 2 inches long and 0.1 inches in diameter were found under the casket lid on the remains. Similar fragments were found in an infant burial at the Roberts Cemetery in Bell County (McWilliams and Whitley 2014). These fragments of wire are interpreted as floral wire. During the Victorian-era it was customary to place flowers in the caskets surrounding the body and pinned to the casket lid (McWilliams and Whitley 2014:45). These wires could also be interpreted as rickrack: "Rickrack is a term adopted during fieldwork to describe a form of filigree trim that occurred in a serpentine motif of copper wire mesh underlain by a finely woven fabric, indicating a cloth-covered coffin" (Ubelaker and Jones 2003:10).

Burial Position/Taphonomy: Semi-articulated remains laid in an extended position on the back. The remains were fragmentary. Arm placement was indeterminate.

Skeletal Preservation: Poor

Sex: Unknown

Age-at-Death: 2–5 months

Stature: N/A

Dental Inventory: Three deciduous teeth, mandibular left M2, M1 and C, were in the tooth crypt and unobservable. Other mandibular teeth present include right I1, M1, and M2. All maxillary teeth are present except the right I1. Age is based on dental crown length measurements.

Dental Pathology/Anomalies/Modification: No

Pathology: No

Entheseal Changes: N/A

Burial 34

Burial 34 contained the remains of a 30-week fetus.

Burial 34 has a child-sized casket with a bench. Shell was present on the top of the bench. The bench was thin and warped inward until touching the casket lid, and the casket lid collapsed onto the base. Two to three centimeters of sediment lay between the bench and the casket lid. The petrous length is 24.3 mm. Fetal measurements on length as reported in Schaefer (2009:22) range from 19.1–25 mm. The length of Burial 34 does not fall outside the 30-week age estimate.

Burial Shaft Size and Depth: Rectangular; 94 cm SW/NE, 48 cm wide. The depth to the top of the arch was 88.4 cm (2.9 feet) and 137.2 cm (4.5 feet) to the base.

Items of Note in Grave Fill: Shell concentration on bench

Wood Arch: Rectangular; 56 cm SW/NE, 29 cm headboard, 31 cm shoulders, 24 cm footboard.

Outer Box: No

Casket Description: Rectangular; 45 cm SW/NE, 9.5 cm headboard, 9.5 cm shoulders, 9 cm footboard.

Painted: No

Viewing Window: No

Hardware: No

Mortuary Artifacts: 33 cut nails, 2 lining tacks, and 1 utilitarian screw

Wood Preservation: Poor

Personal Items: Three Prosser buttons were found in area D. Two dish 10-mm (16 lines) Prosser buttons and one 10-mm (16 lines) Prosser with a ring around the outside were found in alignment west to east.

Burial Position/Taphonomy: Fragmentary, single interment. Almost all of the bone had decayed.

Skeletal Preservation: Poor

Sex: Unknown

Age-at-Death: 30 weeks

Stature: N/A

Dental Inventory: No

Dental Pathology/Anomalies/Modification: N/A

Pathology: No

Entheseal Changes: N/A

SECTION 6
BIOARCHEOLOGICAL ANALYSIS

This chapter discusses the osteological analyses of 35 individuals from Campbell's Bayou Cemetery and compares the results with other cemetery populations from across the nation. Osteological and mortuary summaries of each individual were presented in Chapter 5. Individuals interred at Campbell's Bayou Cemetery resided in a small community listed as Virginia Point on the 1860 census (1860 Census, M593 Roll 1294, census pages 434). However, the individuals interred in Campbell's Bayou Cemetery are not a representation of the population at Virginia Point because burial at Campbell's Bayou Cemetery was limited to family members and a few members of the community, based on records of known interments at the cemetery. Pathological comparisons with the 1870 and 1880 mortality schedules for Galveston are used to understand how health and mortality at Campbell's Bayou Cemetery vary with the community at large. Comparisons with other historic cemetery populations also provide a larger historic context that contribute to understanding life in the late nineteenth century.

Sex

Sex estimation was based on os coxae and cranial morphology outlined in Buikstra and Ubelaker (1994). Metric sex estimations were also employed when possible and used as a substitute when morphological characteristics were unavailable. New research indicates that postcranial elements surpass using the skull for sex estimation and are preferred if the pelvis is missing or too fragmentary for observation (Spradley and Jantz 2011). Metric analysis also provides an objective rather than subjective method for estimating sex. Humeral biepicondylar width was often used since this bone more often survived than others at Campbell's Bayou Cemetery; France's regression formulae are available in Bass (2005). As well, vertical diameter of the femoral head was compared with diameter data in Bass (2005) to estimate sex.

Age

Multiple methods were used to estimate age-at-death since skeletal element preservation varied widely at the site. Methods included auricular surface age-changes (Buikstra and Ubelaker 1994), pubic symphyseal changes (Buikstra and Ubelaker 1994), epiphyseal closure, dental crown and root development via measurements, length of the bars basilaris, pars lateralis (Schaefer et al. 2009), and coffin/casket and grave shaft length (Condon et al. 1998; Whitley 2012). Coffin/casket and grave shaft length was only used with small caskets and in instances with no preserved human remains or dentition.

Dentition

Dental data were collected according to standards in Buikstra and Ubelaker (1994). Visual recording included presence, development, wear, caries, calculus deposits, and hypoplasia. Teeth not fully developed were measured for use in aging the individuals. Caries development, location,

and extent were recorded for each tooth, and calculus deposits were coded by location and extent. Hypoplasia (i.e., lines or pits visible in tooth enamel that developed during tooth formation) was recorded according to the color, type, and distance from the cemento-enamel junction. Hypoplasia age-at-insult was also calculated to determine the frequency and age at which stress occurred, using regression formulae found in Goodman and Rose (1990). Different regression formulae are used on each type of tooth and location. For example, a permanent maxillary first incisor has a different formula from a mandibular first incisor. A 10X lens was used to identify hypoplasia.

Stature

Stature estimates were calculated from regression formula in Trotter and Glesser (1958). Femora were preferred for estimating stature; Trotter and Glesser (1958:119–120) indicate the femor more highly correlates with stature than upper limb bones. However, most bones were incomplete with the epiphyses damaged or missing and long bone shafts fractured. To estimate stature, it was necessary to take measurements of small sections of the bone based on landmarks termed segments. These segment measurements can be used to reconstruct the skeletal element length or used directly to estimate stature if multiple segments can be measured. Regression formulae for estimating stature, based on individual elements or segments, can be found in Steele and Bramblett (1988).

Pathology

Pathological changes were scored for each skeletal element with observable changes. Observations on the type of changes, such as woven bone, periostitis, osteophyte size and location, and degenerative joint disease, were recorded in narrative form. Diagnostic interpretations were not made at the time of observation. These are provided in the following narrative. Schmorl's nodes were scored according to presence/absence and location on the vertebral body. All pathological changes were analyzed using a 10X microscope or lens. Infant and premature skeletons were generally fragmentary, with epiphyses in a state of better preservation than the bone shaft. Their condition prevented observation of pathological changes.

Entheseal Changes—Musculoskeletal Markers

Entheseal changes (changes to the bone caused by muscular activity of the tendons and ligaments), known as musculoskeletal stress markers, were scored according to methods defined by Molnar (2006) and Hawkey and Merbs (1995). Scores ranged from 0–3.5: no expression was recorded as a 0 score, uneven pitting or furrowing as 1, well-defined change with pitting and rugged appearance as 2, and extensive and clearly defined crest, ridge, irregular surface or any combination of these as 3 (Molnar 2006). Half steps, 0.5, were used to give better clarity of the subtle changes. Insertion and origin points for varying muscles in the axial skeleton, arms, legs, and hands were scored on a form designed by Dr. Whitley.

DISCUSSION OF THE CAMPBELL'S BAYOU CEMETERY BURIALS

Thirty-five individuals were excavated from thirty-four graves at Campbell's Bayou Cemetery. Eleven of the graves contained adults and twenty-four were children, infants, and fetuses. Osteological interpretations for those in the cemetery are discussed below. An individual-by-individual discussion is not provided, except in some areas where changes of the skeleton are significant enough to warrant description.

Caries

Dental caries provide information regarding a population's access to certain types of food and the availability of dental care. Caries are a disease that results in demineralization of the tooth enamel due to food particles and plaque and result in opaque spots or large cavities (Roberts and Manchester 1995). Access to refined sugars, sucrose, fine flours, carbohydrates, and processed sticky foods increased caries rates in the latter half of the nineteenth century.

Enamel defects, such as hypoplasia, have a known association with the prevalence of dental caries due to the weakened enamel at these defects. Caries associated with enamel defects are termed "circular caries" (Larsen 1997). Larsen (1997) discusses several case studies in which circular caries are associated with an over-reliance on carbohydrates, poor water quality, consumption of high starchy diets with weaning, excessive fluoride intake, and nutrient deficiencies.

Evidence of dental care accessible to the individuals buried at Campbell's Bayou Cemetery is apparent by the presence of fillings. Dental work was quite expensive and usually only the wealthy could afford this kind of care. Diseased teeth were more likely to be extracted than restored (Sutter 1995). With enough funds, tooth restoration was possible using gold, amalgam, tin, and other metals. Gold fillings were the longest-lasting filling and were preferred, though it had to be pounded into cavities. A tin, lead, and bismuth mixture was melted at 212 degrees Fahrenheit and poured while still hot into the tooth. Amalgam fillings were the most popular because of their hardness, longevity, and ability to be placed where it was difficult to insert gold (Glenner and Willey 1998). These were a mixture of silver, tin, and mercury and would oxidize in the mouth.

Caries prevalence was only counted in children above 1 year of age due to the inconsistencies of teeth present in the grave, in addition to the issue that most teeth would not have erupted and had an opportunity to be exposed to dental disease resulting in caries. Fourteen individuals over 1 year of age had teeth present for observation of dental caries. Nine of the 14 individuals had at least one dental carie, with caries highest in Burial 5 (Table 2). Though nine of the 14 individuals had caries, a calculation of carious teeth to observed teeth is necessary to clarify the carie rate. Of the observed 249 teeth, 53 had caries comprising 21 percent of the total tooth count (Burials 33 and 24 were not included in the tooth count). The majority of the caries were interproximal caries. Two burials of note due to the high prevalence of caries are Burials 5 and 22. Burial 5, a 9–11-year-old, had more carious lesions than any other individual in the cemetery. Of the 30 observed teeth, 24 had interproximal caries that were most prevalent on the incisors, canines, and premolars. The pulp is exposed by the complete destruction of the crown into the root in the right and left mandibular first molars. The right mandibular second incisor has lost a quarter of the crown to a carie and a second carie is at the cemento-enamel junction. The second highest rate was in Burial 22. This individual not only had a high rate of caries, with seven of 10 teeth affected, but was also the only individual

Table 2
Dental Pathology

Burial	Age	Sex	No. Caries Teeth	No. Total Teeth	No. Hypoplasia Insults	No. Teeth with Hypoplasia	Calculus
5	9–11 years	Possible male	24	30	25	18	No
6-2	12–15 months	Unknown	0	5	0	0	No
8	25–35 years	Probable male	5	24	3	3	Yes
10	Unknown	Probable female	0	5	0	0	No
11	6 years	Unknown	1	36	4	3	No
13	Adult	Probable male	3	23	0	0	Yes
14	55–60+	Probable male	2	3	0	0	Yes
17	4 1/2–5 1/2 yrs	Unknown	0	22	1	1	No
18	3-–5 years	Unknown	0	18	0	0	No
19	Adult	Probable male	3	20	0	0	Yes
20	7–9 years	Unknown	2	23	9	7	No
22	45–55 years	Male	7	10	0	0	No
24	34–36 wks to term	Unknown	0	1	0	0	No
25	25–30 years	Male	0	14	0	0	Yes
26	40–55 years	Female	0	1	0	0	No
28	3–5 years	Unknown	6	20	7	4	No
33	2–5 months	Unknown	0	15	0	0	No

with dental work. The lingual lateral biting edge of the right maxillary first incisor had a gold filling. This carie appeared to be filled by the method where a ball of gold is placed in the tooth and hammered into place. On the lateral side of the tooth was a smoothed carie suggesting it had been filled with gold though the filling was lost. The buccal portion of the maxillary right first molar was missing, revealing an amalgam filling. Interproximal caries are on the maxillary right and left second incisors, and right mandibular premolar lacked dental care. Gold fillings are very rarely found in archeological excavations, with Little et al. (1992) reporting they found one gold filling in 6,604 teeth.

Calculus

Dental calculus, or plaque, is a matrix that adheres to the teeth. It is composed of saliva, food particles, proteins, and organisms and develops closest to the salivary glands (Roberts and Manchester 1995). Recent research by Warriner (2012) found that pathogenic bacteria from the nasal passages and bacteria from the upper respiratory tract and gut systems are detectable in the calculus. Since these food particles and bacteria are trapped in the calculus, it can be used to garner very specific information about diet, respiratory and gastrointestinal infections, and DNA of the individual.

Calculus deposits increase with a softer diet. Diets low in sugars and increased carbohydrate consumption lead to calculus deposits whereas sugary diets and starchy foods encourage carie development (Hillson 1996). Thus, the diet of molasses, salted bacon, corn bread, coffee, beans, and sweet potatoes consumed by most Texans in the late nineteenth century should result in a lower rate of calculus deposits.

As expected, calculus deposits were infrequent in Campbell's Bayou Cemetery individuals. Four of the 17 individuals with observable teeth had minor calculus deposits. Burial 13 had very heavy calculus deposits with some crowns unobservable. The heavy deposits and few caries (3/23 teeth) suggests this individual had a diet higher in carbohydrates than others buried in the cemetery. Unfortunately, this individual could only be labeled as "adult," precluding an assessment of the years of accumulation. The presence of the thick deposits also suggests dental care was not available to or not used by this individual.

Hypoplasia

Dental hypoplasias are indicators of stress that occur during development. These record a chronological record of stress episodes, and the defects are areas of decreased enamel thickness resulting in pits, linear or vertical lines, and furrows (Lewis 2007). Hypoplasia can occur on deciduous teeth, indicating stress during fetal growth. More typically observed is hypoplasia in permanent teeth. Permanent teeth develop between birth and 7 years of age, and the highest number of lines peak from 3 to 4 years of age (Lewis 2007). Malnutrition and illness are the two categories of stress, though the exact etiology is unknown (Roberts and Manchester 1995). Illness-associated stress includes high fevers, such as ear infections, measles, typhoid, and cholera, and other childhood diseases. Defects occurring between 2 and 4 years if age may be related to weaning as the associated child loses the protective immunity provided during nursing. Significant to the period at which Campbell's Bayou Cemetery was in use, children were adjusting to contaminated water supplies and the unfiltered water available to the inhabitants of Virginia Point. Additionally, the quality of food may have been lowered for these children as a result of a reduction in protein and other nutrients provided by the mother's milk, resulting in malnutrition. Causes of malnutrition, however, do not necessarily indicate a decrease in the quantity of calorie intake and can occur due to the lack of specific vitamins (e.g., lack of B12, D, C, and niacin that result in rickets, anemia, scurvy, and pellagra). Dysentery/bowel diseases can also prevent absorption of these vitamins. The presence of hypoplasia in children and adults reflects the individual's ability to survive these insults; however, hypoplasia correlates to the deceased's life expectancy (Lewis 2007).

Formulae in Goodman and Rose (1990) were used to calculate the age of insult. The hypoplasia location was measured from the cemento-enamel junction to the hypoplasia, and age of insult was calculated from this measurement. At Campbell's Bayou Cemetery, hypoplasia presence occurred in children between 4 ½ to 11 years of age (see Table 2). No adults showed the insults. Hypoplasia was recorded in Burials 5, 11, 17, 20, and 28. In each except Burial 17, multiple insults were present, with Burial 5 having the highest number—a total of 25 insults—with hypoplasia affecting 18 of the 30 teeth present. In Burial 5, the first insult occurred at the age of 1.2 years and the last at 5 years. Recurrent insults are present at the ages of approximately 1 year, 2 years, 2 years 7 months, 3 years 6 months, 4 years 8 months, 5 years 2 months, 5 years 7 months, indicating an almost continuous onslaught of illness or malnutrition throughout this individual's life until death at approximately 9–11 years old. Burial 11 insults occurred at 1 year 8 months, 2 years 10 months, and 4 years 3 months. This indicates regular intervals if sickness and malnutrition before death at 5–7 years of age. Burial 17 had only one insult at approximately 2 years 8 months, suggesting issues with weaning. This individual died between 4 years 6 months and 5 years 6 months. Multiple insults occurred in Burial 20 at the ages of 2 years, 2 years 10 months, 3 years 6 months, 4 years, and 4 years 6 months. The last individual with hypoplasia buried at Campbell's Bayou Cemetery is Burial 28. These insults occurred at approximate ages of 1 year 3 months, 2 years, 3

years, 3 years7 months, and 5 years. The numerous insults in Burials 5, 11, 20, and 28 suggest continual stress of either malnutrition or illnesses. Hypoplasia at ages 1 and 2 suggest episodes of illness since they may have still been nursing at this age, though illness is always potential. Weaning is probably the cause for insults at approximately 3 years of age. Given the high rates of infectious disease in the late nineteenth century, insults at 4 and 5 years most likely related to illness.

The high rates of hypoplasia in the individuals between 3 and 11 years suggest these individuals were able to survive numerous bouts of insults to their health. Those of a younger age not displaying any hypoplasia or cribra orbitalia and other pathological indicators of disease and malnutrition likely succumbed to a disease, such as cholera, ear infection, scarlet fever, or a host of childhood diseases very quickly. Such insults evidenced by the hypoplasia indicate these individuals may have had a rather robust immune system that was worn down through time, resulting in frailty to the immune system and early death. Since none of these children had evidence of trauma or malnutrition, they probably survived numerous ear infections, weanling diarrhea, high fevers, cholera, small pox, dysentery, pneumonia, etc., before succumbing to the last onslaught of disease. Adults with no hypoplasia and pathological changes to the skeletal elements consistent with malnutrition and disease were also probably subjected to the same insults as those who died as infants and juveniles. The absence does not necessarily indicate this individual was continuously healthy throughout the lifetime.

Degenerative Joint Disease, Schmorl's Nodes, and Entheseal Changes

Degenerative joint disease is one of the most recognizable pathologic changes on the skeleton. These changes are chronic and develop due to aging and mechanical insults resulting in joint destruction, formation, or a combination of both. Degenerative joint diseases are classified as rheumatic diseases (Schumacher 1988) and are segmented into four categories: neuromechanical, inflammatory, immune, and metabolic (Roberts and Manchester 1995). The most commonly encountered class of neuromechanical rheumatic diseases encountered in the archeological record is osteoarthritis. Criteria for identifying osteoarthritis include the presence of osteophytes, bone spurs, and joint space narrowing. Obesity, occupational trauma to the joint, increasing age, and lifestyle can all influence the presence and extent of this neuromechanical joint disease (Larsen 1997; Roberts and Manchester 1995; Schumacher 1988). The prevalence of osteoarthritis is known to increase with age. Inflammatory, immune, and metabolic forms are less frequently reported in the archeological literature. Of these, incidences of inflammatory arthritis, including rheumatoid arthritis, ankylosing spondylitis, spondylarthropathies, and psoriatic arthritis, are more frequently noted.

Neuromechanical changes at Campbell's Bayou Cemetery were present in most adults in at least one category; shoulder, wrist, hip, knee, ankle, and vertebrae. Juveniles were not included in the frequencies of degenerative joint disease since none exhibited signs of juvenile arthritis or other degenerative diseases. Articular surfaces and epiphyses of the long bones were poorly preserved at Campbell's Bayou Cemetery. Even though many of the elements were removed with little damage, in many instances the epiphyses and elements with thick spongy bone were highly friable and typically crumbled during excavation or during removal of the remains. As a result, frequencies of degenerative joint disease within Campbell's Bayou Cemetery are not calculated.

Schmorl's nodes are intravertebral disc herniations of the nucleus pulposa and are expressed in three males. Typically asymptomatic, these herniations can invade the intervertebral disc space (Capasso et al. 1999; Hasegawa et al. 2004). Herniation with postero-lateral crossing is the only type of Schmorl's node that can cause compression of the nerve roots and pain (Capasso et al. 1999). Heavy labor associated with lateral bending and flexion of the vertebral column or trauma is a factor argued to cause the development of the Schmorl's nodes (Haswgawa et al. 2004).

The age-at-death for the population has two peaks; one in early childhood and another at 50 years and older. Those 50 years and older comprise 19 percent (6 of 32) of the skeletal remains complete enough for aging. As expected, degenerative changes in the form of osteoarthritis affected all individuals. Vertebral osteoarthritis was the most common finding in all of the observable adult remains. Only a few individuals with significant osteoarthritic changes, Schmorl's nodes, and entheseal changes will be discussed in depth because they have the most extensive changes.

Burial 1, a male aged 50–60 years, had degenerative changes consistent with an older individual at the vertebral column, wrists, and ankles. The majority of the musculoskeletal stress markers were robust, which is characteristic of an older individual or developed from heavy labor. Large osteophytes on vertebrae thoracic 11 and lumbar 5, without presence of osteophytes on adjacent vertebrae, suggest trauma led to the development of osteophytes. One osteophyte extended 9.9 mm from the body of the vertebrae. In addition to the osteoarthritis, Schmorl's nodes occur on the superior portion of the bodies of vertebrae lumbar 1 and thoracic 9, 10, 11, and 12. Trauma to the neck and the presence of Schmorl's nodes, which are also caused by trauma, suggest this individual was subjected to one or more accidents or traumatic events. Trauma to the cervical is consistent with the Porter's Neck of Levy that can manifest as compression fractures. Evidence of a compression fracture is the fusion of cervical vertebrae 3 and 4, with compression greater on the left transverse process, collapse of the left facets of cervicals 5 and 6, and macroporosity and sharp lipping on the first thoracic vertebra. Porter's Neck of Levy occurs from twisting of the neck while the head is immobilized or from compression of the vertebrae from force pressing down on the top of the head (Capasso et al. 1999).

Burial 2 is a male, categorized as an older adult. The bones are friable, leaving little to analyze. The left acetabulum has lipping, porosity, and the development of sclerotic bone on the lateral edge. On the sternal facet of the right clavicle, a sclerotic area of bone, measuring 9.6 mm medial-lateral and 8.3 mm anterior-posterior, is present. The sternal facet also extends on the anterior edge. Both the right and left olecranons have changes consistent with "woodcutters" exostoses. These are present on the posterior-superior surfaces of the left and right olecranon process. The right is more developed than the left, with the left having minimal development of the exostoses. Woodcutting, blacksmithing and baseball playing are associated with this entheseal extension. These activities involve stress on the triceps brachii insertion during flexion and extension with maximum stress when the arm is horizontal, flexed elbow, and working at full force (Capasso et al. 1999:78). General hypertrophy of the right and left humerus suggests general habitual stress on this bone could have been extreme. This male had changes consistent with someone chopping wood or doing similar movements for an occupation or general tasks at home.

Burial 22 is the grave of a male aged 45–55 years of age and was buried in a cast iron coffin. The lack of evidence of degenerative joint disease in the long bones, hip, and clavicles is due to the fragmentary condition of the joints. However, other observations of vertebral trauma and musculoskeletal stress markers on the long bones could be performed. In addition to the osteoarthritis, Schmorl's nodes occur on thoracic vertebrae 9, 10, 11, and 12, including an intra-

canalar herniation and a herniation extending postero-lateral. According to Capasso et al. (1999:38), the postero-lateral herniation is the only type capable of causing nerve root compression and pain. The presence of Schmorl's nodes suggests this individual was subjected to trauma and/or performed heavy labor at some point during his lifetime. Enthesopathies, useful to infer musculoskeletal stress markers, of the pectoralis and teres major are scored at the highest robusticity, which is indicted by resorptive lesions. In addition, the brachioradialis origin, flexor pollicis longus origin insertion, and anconeus insertion are scored as moderate. Unfortunately, the costo-clavicular ligament attachment was not available for observation. The changes associated with the pectoralis major and Schmorl's nodes are consistent with an individual who worked aboard a ship as a sailor or fisherman who frequently rowed boats. These changes are seen on sailors of the *Mary Rose* and an individual from the Roman period city of *Iader* (Novak et al. 2013). Thus, the potential exists that this individual was a sailor, which would not be unexpected given the history of Virginia Point and its inhabitants.

Burial 8 is the grave of a male aged 25–31. Systemic degenerative joint disease affects this individual. Eburnation, minor to moderate circumferential lipping, and pinpoint and coalesced porosity are present on most of the articular surfaces in varying combinations. In particular, these changes are seen on the temporo-mandibular fossa, dens and dens facets, distal epiphysis of the femora and femoral head, right patella, all tarsals, and proximal and medial metatarsals, in particular the first proximal phalange, calcaneus, and talus. Neither medial clavicle has fused and the left flake has a large resorptive indentation in the center. General humeral hypertrophy is indicated by moderate to heavy entheseal changes; the pectoralis major could not be scored. Hypertrophy of the costal tubercle, or costal syndesmosis, lateral robusticity are present on both clavicles. These entheseal changes are consistent with carrying heavy loads in both hands while the arm is extended and general stress on the pectoral girdle with the shoulders bent forward (Capasso et al. 1999). These were also found in individuals from the *Mary Rose* crew whose rigorous duties included tasks such as repairing canvas masts, use of long bows, and moving cannons (Capasso et al. 1999:52).

Though the entheseal changes indicate heavy labor, the symmetrical, systemic osteoarthritis is probably not caused by the same factors resulting in the musculoskeletal stress markers. These systemic changes are consistent with rheumatoid arthritis (RA); however, differential diagnoses such as psoriatic arthritis, gout, and osteoarthritis must be considered (Roberts and Manchester 2005). RA is a "chronic, systemic, inflammatory disorder characterized by the manner in which it involves joints" (Schumacher 1988:83). The joints affected include those of the hands, wrists, knee, shoulders, and elbows, though not the distal interphalangeal joints. The most commonly involved are the hand, wrist, knee, and foot. The temporomandibular joint can also be involved but is less common than other joints (Schumacher 1988). Resnick and Niwayama state that the onset of the disease typically occurs between 25 and 55 years of age (see Ortner 2003). Occupation based on the entheseal changes suggests this individual performed tasks, including but not limited to, carrying heavy loads with both hands and suggests this individual may have performed duties of a sailor. However, the symmetric joint changes and as well as the joints affected indicate he also would have had rheumatoid arthritis and suffered from stiffness, fatigue, fever, and weight loss.

Degenerative joint disease in Burial 14, a male 55–60+ years, is similar to that found in Burial 8. Bilateral eburnation and lipping is present on the femoral head, surfaces of the distal tibiae, talus, and the talar facet on the calcaneus. Left carpals, left acetabulum, and the right semilunar notch are affected without bilateral expression. Collapse of the calcaneus at the talar facet has led to the talus tilting anteriorly and inferiorly into a cupped area of the calcaneus. The facet has depressed

2.34 mm. These changes are also consistent with rheumatoid arthritis. However, due to the age-at-death of the individual, the differential diagnosis of osteoarthritis is age-related change. General stress, such as farming, may be the cause for the Schmorl's nodes on thoracic vertebrae 8, 9, and 10. Thoracic 8 and 10 have concomitant Schmorl's nodes with thoracic 9, 8 with only an inferior node, and 10 with a superior node. The presence of Schmorl's nodes suggests this individual was subjected to trauma and/or performed heavy labor at some point during his lifetime. Entheseal changes of the pectoralis insertion of the humerus could not be observed, limiting occupational assessments. This individual also has an olecranon spur extending 4.9 mm from the proximal olecranon. Capasso et al. (1999) term this a woodcutters lesion because these changes have been seen in individuals with such occupations as woodcutting, quarrying, and blacksmithing. Of additional interest is the presence of the extension of the femoral head that indicates extensive squatting or sitting cross-legged (Capasso et al. 1999). This individual, just as Burial 8, may have suffered from rheumatoid arthritis. Though the changes are not yet severe, the age-at-death is not outside the onset of the disease that may have occurred later in life. It is possible the woodcutters lesion and Schmorl's nodes occurred in early adulthood since progression of this disease leads to malaise, fatigue, joint pain, and swelling with the pain and stiffness limiting movement (Schumacher 1988). Thus, the changes in the femoral head indicative of squatting or sitting cross-legged could be associated with the malaise, fatigue, and joint pain. However, this could also be related to occupational changes or simply a preference in sitting style.

Developmental Defects

Abnormalities developed during fetal growth are known as developmental defects. Typically, these defects occur during the first eight weeks following conception (Barnes 1994). Genetic and environmental factors influence the development of skeletal elements. Genetic factors influencing developmental defects are considered malformations. Deformation alters the normally developing skeletal element in-utero or postnatally (Barnes 1994). At times, both genetic or environmental factors can cause the same malformation or deformation. For example, sacral neural arch defects (spina bifida) can result from genetic predisposition or the lack of folic acid in the mother's diet, as opposed to rickets, which is strictly an environmental effect. Developmental defects are useful for tracking biological affinities and access to certain dietary requirements—vitamin C. The frequency of the same defects in closely related populations, or as in the case of Campbell's Bayou Cemetery, can elucidate possible kinship and residence patterns. Though developmental defects were absent from the individuals buried at Campbell's Bayou Cemetery, poor preservation of the skeletal elements of fetuses and term infants hindered assessments (Barnes 1994). At Campbell's Bayou Cemetery, 20 percent of the graves were of fetuses (6 of 35) and a term infant (1/35). Barnes (1994) notes that severe developmental defects comprise 20 percent of stillbirths and 20–40 percent of spontaneous abortions, leaving the potential that some of the fetuses had developmental defects. A sacral neural arch defect affecting the second sacral segment resulted in a cleft of this segment in Burial 25 and incomplete development of the third and fourth neural arches. This individual survived to 25–30 years of age-at-death. Individuals with sacral cleft defects may not have been aware of their developmental defect since the fibrous and tough tissue would have protected the cleft (Barnes 1994).

Trauma

Very little trauma was found in Campbell's Bayou Cemetery individuals. Trauma consisted of healed greenstick fractures and possible sharp force trauma. Sharp force trauma was evident in the right tibia on the arcuate of the male in Burial 13. The wound was healed, although the hinged bone was still visible because it did not reset properly and protruded 5.1 mm from the bone. Three others have fully healed greenstick fractures. Burial 26 had a greenstick fracture of the fourth left metacarpal, Burial 25 of the distal right ulna, and the distal foot phalange of Burial 8. Trauma to the neck in Burial 8 resulted in fusion of cervical vertebrae 3 and 4, which is consistent with Porter's Neck of Levy (Capasso et al. 1999).

Infection

Evidence of chronic infectious, metabolic, endocrine, and neoplastic disease was lacking at Campbell's Bayou Cemetery, except in one individual. Though there is no evidence of these conditions on the bone for the remaining individuals, they may have suffered from one or more these diseases that did not alter the skeleton either because the individual succumbed to the disease before it could alter the bone or they succumbed to some other health insult before the disease could alter the bone. In addition, some of these diseases, such as tuberculosis, only affect the bone in a small percentage of cases.

Burial 10 has evidence of osteomyelitis. Osteomyelitis is an infectious disease affecting the marrow cavity of the bone and often results in pyogentic bacteria entering the bone; the most common causative organism is *Staphylococcus aureus* in 90 percent of the cases (Ortner 2003). In adults, the inflammation of the bone is less extensive and the bone growth associated with the condition is limited. In Burial 10, the medial line of the right femoral linea aspera has sclerotic and woven bone with cloaca that drains in a superior direction. The presence of the cloacal opening indicates the pus from the infection escaped through the skin surface. The individual with this condition would have become seriously ill, with associated pain, fever, and immobility, and surviving this condition was uncommon before the advent of antibiotics (Roberts and Manchester 2005).

Evidence of Medical Treatment

Trephination is a surgical procedure for removing a piece of the skull, exposing the dura of the brain. There are four general methods for removing the piece of skull: scraping, grooving, boring and cutting, and rectangular intersecting cuts to remove the bone fragment (Gross 1999). Successful surgeries relied on the surgeon not hitting a major artery and avoiding puncture of the dura (Roberts and Manchester 2005). Trephination went in and out of vogue during the nineteenth century. In the early 1800s, trephination moved from the home to hospitals. The increased mortality by the procedure being performed in hospitals resulted in the procedure becoming an unfavorable practice. In the late 1800s, the introduction of anesthetics, antisepsis, and prophylaxis of infection propelled trephination into becoming a modern procedure for head trauma (Gross 1999). In the nineteenth century, trephination was used to treat cases of epilepsy, head trauma, and mental illness. A female over the age of 60 years-at-death (Burial 7) exhibits pathological changes consistent with trephination. An opening 60 mm superior to inferior in orientation and 55 mm anterior–posterior is located on the right parietal and is the only hole present. The bone is fully

healed and the spongy bone is no longer visible. The scraping method was probably used since the wound has beveled edges. Healed bone at the edge of the wound is 1.7 mm thick whereas the undamaged bone is 6.4 mm thick. The major arteries, such as the middle meningeal, were avoided.

COMPARATIVE ANALYSIS

Historical demographic records can provide an immense amount of information regarding past health and lifestyles. However, there are deficiencies inherent in the data because mortality schedules only capture a snapshot of the causes and ages of death every decade and because of the lack of understanding of the causes of many diseases, not to mention issues surrounding legibility of the handwriting. Collection of such historic data also left out smaller areas or individuals based upon the enumerator's path. Though the cemetery is not a representation of the living population in Virginia Point since not all who resided at Virginia Point were buried there, it does provide important information on the lives of the first settlers of the Galveston area and how the relationship between their physical and cultural environments influenced their overall health.

These comparisons will indicate if the diseases, age, and life stressors correlate with expectations based on regional data summarized from census mortality schedules and excavated cemeteries. Mortality schedules are from the Galveston 1850, 1870, and 1880 censuses and provide local comparisons that would have also included Virginia Point inhabitants, even though there are only 48 people on the 1860 census roll. Comparisons on health, trauma, stature, etc., use comparative data from excavated cemeteries. The cemeteries chosen for comparison are small family or community cemeteries in rural areas dating to the late 1800s. An effort was made to include as many cemeteries from Texas as possible because these individuals likely would have been exposed to similar stressors because of immigrating to the Texas frontier.

- *Sinclair Cemetery 41DT105 (1850–1880)*: This cemetery is a small, family cemetery in Delta County, Texas. The residents belonged to a community called Granny's Neck that was 3 miles south of Cooper, Texas, the county seat and largest town in the county. The burial population consists of white farmers (Winchell et al. 1995). Number of burials: 16.
- *Tucker Cemetery (1880–1942)*: Located near 41DT105, this cemetery is a small family cemetery. It is northeast of 41DT105 in Delta County, Texas (Winchell et al. 1995). Number of burials: 16.
- *Reynolds Cemetery (1832-1900)*: This is a small, rural cemetery in Kanawha County, West Virginia. The interments were of the founding Reynolds family and potentially other locals interred after the Reynolds family moved from the location (Bybee 2002). Number of burials: 31.
- *Morgan Chapel (1891–1937)*: These graves are from a historic cemetery in Bastrop County, Texas (Taylor et al. 1986). Number of burials: 21.
- *Brunson-Sisson Cemetery (1836–1892)*: This cemetery is a small, rural cemetery of pioneers and farmers near Joliet, Illinois. The burial population consisted of three related Caucasian families (Cobb 1999). Number of burials: 20.
- *Pioneer Cemetery (1880-1921)*: These burials represent a small portion of Pioneer Cemetery in Dallas, Texas. The individuals relocated were Caucasian (Cooper et al. 2000). Number of burials: 15.
- *Texas State Cemetery (1844–1951)*: A relocation project moved several white Confederate soldiers due to renovation activities. These burials represent slightly later interments, most in the early 1900s (Dockall and Baker 1996). Number of burials: 57.

- *Cross Homestead (1820–1849)*: This cemetery contains Caucasian tenant farmers in Springfield, Illinois (Larsen et al. 1995). Number of burials: 29.
- *Choke Canyon (1860–1930)*: Located in southcentral Texas, these data represent the combining of five small Caucasian cemeteries (Fox 1984). Number of burials: 34.
- *Voegtly Cemetery (1833–1861)*: This cemetery is in Pittsburgh, Pennsylvania, in the Voegtly churchyard next to the Voegtly church. The first interments were Swiss-German settlers (Ubelaker and Jones 2003). Number of burials: 744.
- *Ware Cemetery (1858, 1909)*: This cemetery is in Rusk County, Texas. The cemetery contained three Caucasian individuals: two adult males and one infant (Norment et al. 2014). Number of burials: 3.
- *Roberts Cemetery (1895–1930)*: This cemetery is in Troy, Texas, and only a few individuals in the right-of-way for the highway were moved. These burials are slightly later interments (McWilliams et al. 2014). Number of burials excavated: 3.
- *Modern U.S. Statistics:* U.S. Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics (McDowell et al. 2008).

Stature Estimates

Stature could only be calculated for a few adults in Campbell's Bayou Cemetery. Those available can be compared to stature estimates from the comparative cemeteries. Stature estimates in the reports, however, do not include minimum and maximum scores and investigators must thus rely upon the average stature listed. This makes it difficult to discern the full range of heights and to determine if any of the individuals from Campbell's Bayou fall at the higher or lower end of the stature scale. In addition, it masks any overlap in stature between males and females as represented by smaller males and taller females.

Five of the six individuals whose stature could be calculated were male. Height ranges between 168.5 cm to 178.0 cm (5' 6" to 5' 10": Table 3). Campbell's Bayou Cemetery male stature was similar to comparative cemeteries whose averages fell between 173.3 cm and 177 cm. Though many of these cemeteries are small, with five or fewer males for comparison, the Texas State Cemetery average based on 47 individuals was also similar at 174.7 cm. Mr. Ware, from the Ware Cemetery in East Texas, exemplifies the hidden stature variance as his height estimate was168.1 cm (5' 6") (Table 4). Stature could only be estimated for one female from Campbell's Bayou Cemetery; Burial 10 estimated at 153.1 cm (5' 0"). Though this falls well below the other cemetery stature estimates for females, this individual's height may simply represent the lower statures hidden by the averages since no range was given.

Stature is a good reflection of the health of a population during childhood. Nutritional deprivation, nutritional quality, and disease burden affect terminal height of an individual (Larsen 1997). Genetics do play a role since terminal height is also dependent upon the genetic population under analysis. Stature of the males at Campbell's Bayou Cemetery do not significantly vary from other Caucasian cemeteries of a similar time period or Modern U.S. Stature Estimates (see Table 4). The similar statures indicate the adult individuals at Campbell's Bayou, were not likely to have experienced greater nutritional deprivation or disease burdens.

Table 3
Campbell's Bayou Cemetery Stature Estimates

Burial No.	Age	Stature cm	Sex
1	50–60	171.8 (5' 7.6")	Male
2	Older Adult	173.0 (5' 8")	Male
8	25–35	168.5 (5' 6.3)	Probable Male
10	Unknown	153.1 (5' 0")	Probable Female
14	55–60+	176.8 (5' 9.6")	Probable Male
22	45–55	170.6 (5' 7")	Male
25	25–30	178.0 (5' 10")	Male

Table 4
Comparative Stature Estimates

	Male		Female	
Cemetery	Stature (cm)	No. of Burials	Stature (cm)	No. of Burials
Campbell's Bayou Cemetery	173.1	6	153.1	1
Brunson-Sisson Cemetery	175.8	4	169.0	1
Choke Canyon Reservoir	174.1	2	159.9	8
Cross Homestead	174.8	5	163.3	6
Roberts Cemetery	173.3	3	–	–
Texas State Cemetery	174.7	47	160.9	5
Ware Cemetery: Mr. Robinson	177.0	1	–	–
Ware Cemetery: Mr. Ware	168.1	1	–	–
Modern U.S.: Stature Estimates	174.0	–	161.0	–

Health

Dental Health

Comparative assessment of dental health reflects differences in health and diet among populations. Teeth are usually well preserved even if bone is not, thus providing a more robust data set for comparison of access to dental care, personal hygiene, diet and types of foods eaten, and health. Comparison with Texas cemeteries used during the same period, the late 1800s, expands knowledge on the experience of Texas settlers.

Dental hypoplasia, an indicator of childhood stress, is high in most of these cemeteries. However, the small number of burials in each probably skew the percentage to reflect a greater percent of individuals affected. Six of the 17 individuals with observable teeth at Campbell's Bayou Cemetery have at least one dental hypoplasia, a rate of 35.3 percent (Table 5). Only the Texas State Cemetery and the Brunson-Sisson Cemetery show fewer hypoplasia. Vogetly Cemetery hypoplasias are reported as percentage of teeth affected, since reporting by person inflates the percentages of teeth

Table 5
Comparative Dental Disease, Joint Disease, Schmorl's Nodes, and Trauma

Cemetery	Hypoplasia		Caries		Degenerative Joint Disease		Degenerative Joint Disease—Vertebrae[1]		Schmorl's Nodes		Trauma	
	Percent	No. of Burials	Percent	No. of Burials	Percent	No. of Burials	Percent	No. of Burials	Percent	No. of Burials	Percent	No. of Burials
Campbell's Bayou Cemetery	35.3%	17	64.3%	17	75.0%	8	71.4%	7	37.5%	8	11.4%	35
Roberts Cemetery	100.0%	3	66.0%	3	5.0%	3	33.3%	3	33.3%	3	66.7%	3
41DT105	56.0%	9	70.0%	10	20.0%	10	-	-	-	-	30.0%	10
Tucker	-	-	66.6%	6	66.6%	3	-	-	-	-	25.0%	4
Choke Canyon	-	-	16.7%	12	77.0%	26	-	-	-	-	77.0%	26
Morgan Chapel	-	-	50.0%	4	-	-	-	-	-	-	50.0%	2
Brunson-Sisson	15.4%	13	-	-	90.0%	10	70.0%	10	55.5%	9	-	-
Pioneer Cemetery	40.0%	5	-	-	100.0%	3	100.0%	3	100.0%	3	-	-
Texas State Cemetery	15.7%	83	-	-	94.6%	56	51.8%	53	32.0%	53	-	-
Cross Homestead	64.0%	?	-	-	27.3%	11	57.1%	7	28.6%	7	-	-
Vogetly Cemetery[+]	18.2%	1836	28.5%	2738	-	-	7.6%	131	2.3%	131	-	-

[1] Reported for males only
+ Hypoplasia and caries rates are based on observable teeth with one or more caries/hypoplasia

affected and does not account for dental attrition or edentulous individuals. Of the teeth analyzed at Vogetly, 18.2 percent have hypoplasia. Campbell's Bayou Cemetery, when comparing number of teeth affected, exhibits a smaller amount of hypoplasia at 14.2 percent.

Hypoplasia present in individuals who succumbed to a young age-at-death is important in understanding the intensity of stress episodes of that individual before death at an early age. Bouts of stress during childhood contribute to weakening the immune system, making the individual more susceptible to further health insults and an earlier death (Larsen 1997). At Campbell's Bayou Cemetery, hypoplasias were only evident in children from ages 3 to 11 years. Data are not available at many of the cemeteries regarding rates in children. Regular reporting of the number of adults and subadults with hypoplasia will be useful in determining whether other areas had children with multiple health insults that may have affected their survival.

Dental caries in these populations indicate a similar diet of sticky carbohydrates consistent with foods consumed by Texas pioneers. Caries rates for Campbell's Bayou Cemetery are calculated on the number of individuals with observable teeth. Of those, 64.3 percent had dental caries, some having more carious teeth than others (see Table 5). Dental care and fillings are unknown for the comparative cemeteries; however, the high rates of dental caries suggest dental care was minimal and dental hygiene was probably poor in all of these areas. The only cemetery with low dental caries rates was Choke Canyon. Differences in caries rates may be because the dates of the interments extended until 1930. As time progressed from the late 1880s, diets expanded to include a greater variety of foods and teeth cleaning methods and dental care improved. Thus, individuals from Campbell's Bayou Cemetery had rates consistent with comparable areas of Texas.

Degenerative joint disease (DJD) of the vertebrae and nonvertebral joints was prevalent in most of the cemeteries. Given the general heavy labor required to thrive on the Texas frontier, high rates of degenerative joint disease in these sites is not unexpected. Larsen (1997) notes that life for the pioneers on the frontiers was physically demanding, and Texans, specifically noted, had an elevated prevalence of osteoarthritis and indicators of physiologic stress. DJD frequency and severity is also known to increase with the age of an individual. Individuals from Pioneer Cemetery are over 35 years of age. Only one adult is under 30 years at Brunson-Sisson and all individuals from Texas State Cemetery are over 60 (Tiné 2000). At Campbell's Bayou Cemetery, DJD affects all adults in at least one joint except one female, Burial 7. Given the trepanation, she was probably frail and did not participate in heavy labor tasks. The amount of vertebral DJD at Campbell's Bayou Cemetery is greater than at many of the other Texas cemeteries and may have to do with differences in the type of heavy labor performed in various areas, particularly given the reported ages at Texas State Cemetery (see Table 5). Texas State Cemetery had lower rates of DJD in the vertebrae and this lower percentage of vertebral DJD may be a result of the interments extending into the 1950s that may reflect changes in occupation (i.e., less labor-intensive occupations) and may also be dependent upon the small sample size at Campbell's Bayou Cemetery. Articular DJD at Campbell's Bayou Cemetery percentage was high (75 percent). Texas State Cemetery and Brunson-Sisson cemeteries also had high percentages, 94.6 percent and 90 percent respectively. In both cemeteries, appendicular DJD was more prevalent than vertebral DJD and Campbell's Bayou had similar rates. This suggests that vertebral DJD difference may reflect occupational differences among the populations. Alternatively, the low percentage of appendicular DJD with high vertebral DJD at Cross Homestead elucidates the differences in occupation changes associated with tenant farming and living on a costal environment, several of whom may have been sailors.

Schmorl's Nodes

Heavy, continuous working and general physical stress results in Schmorl's nodes. Of the 35 individuals buried at Campbell's Bayou Cemetery, only eight were adults (see Table 5). Of these, 37.5 percent (n=3) had Schmorl's nodes and all were male. These three males were 45–50+ years in age and would have performed tasks requiring heavy labor. One individual also had woodcutters lesions, consistent with chopping wood or other activities with similar movements. Roberts Cemetery and Texas State Cemetery have similar rates of Schmorl's nodes. Vogetly Cemetery has very few cases and percentages of vertebral DJD is also minimal at 7.6 percent. Their lower percentage reflect differences in labor practices and lifestyles and, even though the cemetery dates A.D. 1833–1861, may reflect lifestyles in Switzerland and Germany since the majority of individuals in this population were immigrants.

Trauma

Individuals in Campbell's Bayou Cemetery had very low percentages of trauma compared to other cemeteries (see Table 5). Trauma at Campbell's Bayou Cemetery includes a broken distal toe, sharp force trauma to a tibia, fused cervical vertebrae and osteoarthritis from trauma to the neck, and a healed greenstick fracture of the ulna. Trepanation is not included in the trauma as it was probably caused by a surgical procedure. Trauma at Campbell's Bayou Cemetery only affects 11.4 percent of the individuals interred in the cemetery. Campbell's Bayou Cemetery's rate is extremely low since the next lowest comparative percentage is 25 percent at Tucker Cemetery and the highest percentage at 77 percent at Choke Canyon. The low trauma rate may be associated with the high percentage of juveniles in the interments at Campbell's Bayou Cemetery; which account for 27 or the 35 individuals. Twenty of those individuals are under 5 years of age.

Demographics

Campbell's Bayou Cemetery provides an atypical view of a skeletal population in a historic cemetery. The high percentage of infants and children under age 5 in the populations is rare. In many demographic analyses, concern is posited regarding the validity of the studies due to the potential of underrepresentation of infants and small children (Chamberlain 2006; Heilen et al. 2012). Archeological demographic profiles usually have an overabundance of middle-aged individuals with few infants and older adults. The opposite is present at Campbell's Bayou Cemetery.

Among the 35 individuals buried at Campbell's Bayou Cemetery are eight male adults and three female; three were of indeterminate age (Table 6). Children under 20 years of age-at-death, (n=24) comprised 69 percent of the burials. One child, age 10–15 years-at-death, was estimated to be a male. Though individuals under the age of 18 are generally difficult or impossible to sex, this juvenile had a clearly male development of the greater sciatic notch. The excavation of infant remains in a historic cemetery is relatively low, and the presence of premature infants is even rarer. The majority of children at Campbell's Bayou Cemetery are under 5 years of age (n=18), with six premature infants aged 30–40 weeks (see Table 6). No developmental defects of these individuals were evident, although the poor condition of some of the remains may have precluded observations. The presence of six burials containing the remains of premature infants provides little-known information regarding the health insults of women during pregnancy in the late 1800s. Living

Table 6
Sex and Age Estimates for Campbell's Bayou Cemetery

	Sex Unknown	Male	Female	Total
Fetus	6	–	–	6
Term	2	–	–	2
0–3 months	1	–	–	1
3–6 months	3	–	–	3
6 months–1 year	3	–	–	3
1–4.9 years	5	–	–	5
5–9.9 years	3	–	–	3
10–14.9 years	–	1	–	1
15–19.9 years	–	0	–	0
20–29.9 years	–	2	–	2
30–39.9 years	–	0	–	0
40–49.9 years	–	0	–	0
50–59.9 years	–	1	2	3
60–69.9 years	–	2	–	2
70+ years	–	1	–	1
Adult	–	2	1	3
Total	*23*	*9*	*3*	*35*

conditions of the 1800s correlates with modern developing countries that lack sanitation and medical care. In these developing countries, infection is one of the most common causes of stillbirths resulting in approximately 50 percent of their prenatal deaths. Maternal illnesses from viruses, bacteria, and protozoa such as streptococci, E. coli, and malaria are the culprit of these late-term miscarriages (Goldenberg et al. 2010). Known causes of modern miscarriage, such as preeclampsia, gestational diabetes, placental ablation, and congenital malformations, may also attribute to the preterm burials at Campbell's Bayou Cemetery; however, it is more probable the majority of these stillbirths were the result of infections and illness in the mothers.

Life during the late 1800s could be harsh for those surviving to term and living into adulthood. Prior to antibiotics, regular access to clean water, and vaccines, life expectancy was much lower than today. Exposure to unsanitary environments, nutritional stress, lack of fresh foods/ fruits/vegetables throughout the year, and epidemic diseases are likely the cause for the majority of the infants' and children's deaths, and adults succumbing to infections, epidemics, and accidents, with a few surviving to an old age of 60+. Summer months were a dangerous period for infants and young children, even more so than winter, due to diarrheal diseases from poor quality weaning foods, dilution of weaning foods with contaminated water, drought conditions increasing water contamination from storage, dehydration, and heat exhaustion. Saunders et al. (1995) report that bowel trouble was the culprit for more than half of the deaths in 1840 Massachusetts and 39 percent infant deaths occurred between June and August. Vogetly cemetery also has the same pattern with 13.4 percent of deaths occurring in July and 11.9 percent in August in children up to 5 years of age (Ubelaker and Jones 2003).

Mortality schedules provide specific information regarding types and frequencies of causes of death for the U.S. census year and the frequencies of age-at-death. Historic population demographic profiles have a high rate of death at birth declining to the age of 5. Death rates do not peak again until 20–30 years of age and decline until individuals are up to 90 years of age. Table 7 lists ages-at-death for Campbell's Bayou Cemetery, Vogetly, site 41DT105, the 1880 Galveston Mortality Schedule, 1870 Galveston Mortality Schedule, and the 1880 Mortality Schedule for the state of Texas. Data compiled from the 1880 census for Texas reflect 26.7 percent of the population died before 1 year of age and 19 percent between the ages of 1 and 5 (Whitley 2014). A marked increase is present in the 20–30-year age bracket. Though 41DT105 only has individuals in three categories, two represent the major spikes in deaths. The 1880 and 1870 Galveston mortality schedules have increased percentages of deaths in the 20–30, 30–40 and 40–50 age brackets. These rates may be influenced by immigrant populations coming through the Galveston port. In contrast, no individuals between 30 and 40 years of age were buried at Campbell's Bayou Cemetery.

Table 7
Age at Death

				Mortality Schedule		
Age	Campbell's Bayou	Vogetly	41DT105	1880 Galveston	1870 Galveston	1880 Texas Mortality Schedule
0–1	46.9%	36.2%	43.0%	26.0%	20.0%	26.7%
1–5	15.6%	27.2%	–	14.0%	14.0%	19.8%
5–10	9.4%	6.1%	–	3.0%	3.0%	4.9%
10–20	3.1%	4.5%	–	4.0%	9.0%	7.9%
20–30	6.3%	6.5%	29.0%	12.0%	16.4%	12.1%
30–40	–	9.3%	–	17.2%	15.7%	9.0%
40–50	3.1%	6.1%	–	11.1%	12.0%	6.0%
50–60	6.3%	2.2%	–	5.0%	6.9%	4.4%
60–70	6.3%	1.1%	28.0%	5.0%	8.0%	4.2%
70+	3.1%	0.7%	–	5.0%	4.0%	4.3%

At Campbell's Bayou Cemetery, two individuals have an age at death between 20 and 30 years of age, but there are no deaths between 30 and 40 years of age (see Table 7). The spike in age of death between 20 and 30 years is generally the result of the female deaths associated with childbirth and responsibilities associated with adulthood. Contrary to typical historic demographic profiles, there is a peak after the age of 50 in individuals buried at Campbell's Bayou Cemetery. This deviates from the normal demographic profiles of the late nineteenth century. Campbell's Bayou Cemetery rate can be the result of several incidences. One, individuals from the families associated with Campbell's Bayou Cemetery may have survived past the trend of being buried in family cemeteries. The beautification-of-death movement occurring around 1880 marked a trend in burials in community cemeteries rather than family cemeteries. Second, burials of older individuals after the beautification-of-death movement in Campbell's Bayou Cemetery may be a matter of choice, particularly for older individuals, to be buried in the cemetery where predeceased spouses and children may have been laid to rest. Third, the high number of infant burials that continued into the early 1900s may be the result of the choice of burying children at Campbell's Bayou Cemetery. In the cemetery, there is a concentration of children's burials located at the entrance of the cemetery.

This concentration most likely represents a section of the cemetery set aside for the burials of infants and children. Adult plots are well spaced plots that do not overlap. At the entrance of the cemetery, children's plots are unorganized and some grave shafts almost cut into other burials.

Potential causes of death for individuals buried at Campbell's Bayou Cemetery can be gleaned from mortality schedules compiled in the 1870s and 1880s. Mortality schedules for the state of Texas in 1880 and mortality schedules from Galveston County in 1870 and 1880 provide documentation of the types of diseases and conditions that were most common in the Galveston area during these census years (Table 8). Most archeological literature states that children under age 5 died from childhood illnesses such as scarlet fever, weanling diarrhea, measles, mumps, and rubella. However, a compilation of the 1870 mortality schedule for Galveston County shows that congestion, inflammation, dysentery, typhoid, pneumonia, convulsions, teething, and tightness are the most common causes of death. In the 1880 mortality schedule consumption ranks first with pneumonia, lockjaw (tetanus), heart disease spasms, convulsions, diphtheria, paralysis, croup, and summer complaints (diarrhea) comprise the top causes of death. Neither of these are completely congruent with the 1880 U.S. mortality census which list consumption, pneumonia, diphtheria, heart disease, cholera, stillborn, malaria fever and croup as some of the top causes of death. While the U.S. mortality census is useful, the 1870 and 1880 mortality schedules for Galveston County indicates reflects local causes of death. For example, the 1880 Galveston Mortality census indicates that the two top causes of death in children under the age of five was lockjaw and spasms followed by convulsions, croup, diphtheria, summer complaints (diarrhea), pneumonia, teething, cholera, cramps, lack of food, inflammation of the brain, and malformation. In the 1870s census, conditions consistent with diarrheal diseases is the most common cause of death for the population. For children under five, teething, convulsions, inflammation, pneumonia and tetanus are the most frequent causes of death; with tetanus afflicting newborns more than any other age group.

Table 8
Causes of Death in the Mortality Census

1870 Mortality Schedule			1880 Mortality Schedule			1880 U.S. Mortality Census Summary		
Disease	N	Percent	Disease	N	Percent	Disease	N	Percent
Congestion	48	16%	Consumption	24	12%	Consumption	92170	12%
Inflammation*	28	9%	Pneumonia	11	5%	Pneumonia	63053	8%
Chronic dysentery	21	7%	Lockjaw	9	4%	Diphtheria	29314	5%
Typhoid	19	6%	Heart disease	8	4%	Heart disease	26008	3%
Pneumonia	17	6%	Spasms	7	3%	Cholera	24983	3%
Convulsions	13	4%	Convulsions	5	2%	Still-born	24786	3%
Teething	13	4%	Diphtheria	5	2%	Enteric fever	22854	3%
Tetanus	9	3%	Paralysis	5	2%	Malarial fever	20231	3%
Dis of sen??[1]	8	3%	Croup	4	2%	Croup	17966	2%
Remittent fever	8	3%	Summer complaint	4	2%	Convulsions	17844	2%
Fever	6	2%	General debility	3	1%	Scarlet fever	16388	2%
Acute diarrhea	5	2%	Hemorrhage	3	1%	Dropsy	14788	2%
Intermittent fever	5	2%	Old Age	3	1%	Debility	14619	2%
Total	*298*			*203*			*756893*	

*Most likely inflammation of the bowel
[1]Unable to decipher writing
Data compiled from Billings (1885)

PERSONAL ARTIFACTS

Numerous personal artifacts were found among the individuals buried at Campbell's Bayou Cemetery. Burials lacking artifacts were infants or those with no identifiable remains within the coffin/casket. Those without identifiable remains, however, had coffin/casket sizes consistent with infants. Among the identified personal artifacts were Prosser buttons, shell buttons, safety pins, straight pins, bone buttons, and buckles (Table 9).

Table 9
Personal Artifacts

Burial	Age	Sex	Personal	Number	Holes	Lines
1	50–60	Male	Prosser button—dish type	1	4	10
2		Male	Bone	5	4	24
			Prosser button—dish type	1	4	18
			Prosser button—dish type	2	4	20
			Iron button	1	Shank	N/A
3	0–3 months	Unknown	N/A	–	–	–
4	No remains	Unknown	N/A	–	–	–
5	9–11 years	Probable male	Buckle fragment	–	–	–
			Prosser button—dish type	4	4	16
			Prosser button—dish type	3	4	26
6-1	0–1 month	Unknown	N/A	–	–	–
6-2	12–15 months	Unknown	N/A	–	–	–
7	60+ years	Female	Prosser button—dish type	1	4	16
			Prosser button—dish type	1	4	26
			Shell	5	2	20
			Shell	1	2	16
			Hard rubber comb	1	–	–
8	25–35 years	Probable male	Prosser button—dish type	2	4	20
			Metal button	2	Unknown	Unknown
9	No remains		N/A		–	–
10	Adult	Probable female	Shell	1	Unknown	Unknown
			Metal fastener	1	Unknown	Unknown
11	6 years	Unknown	Shell	1	Unknown	Unknown
			Prosser button—dish type	4	4	18
			Prosser button—dish type	1	4	20
			Papa's Pride" gold nameplate	1	–	–
12	3–6 months	Unknown	Safety pin found at waist	1	–	–
			Prosser button—dish type	4	4	12
			Prosser button—dish type	9	4	14
			Prosser button—dish type	1	4	16
13	Adult	Probable male	Ovoid lead flintlock clamp		–	–
			Prosser button—dish type	2	4	14
			Iron button	1	4	12
14	55–60+	Probable male	Prosser button—dish type	2	4	18
			Copper	1	Unknown	24
			Japanned bar with diamond pattern	1	Japanned	24

Table 9 (cont'd)

Burial	Age	Sex	Personal	Number	Holes	Lines
			Japanned bar with no identifiable pattern	1	Japanned	24
			Rubber button iron inlay	1	Wedge shank	22
			Iron button size not determined		–	–
15	4–7 months	Unknown	Prosser button—dish type	3	4	16
16	32 wks to term	Unknown	Safety pin 4.25 cm long	1	–	–
			Straight pin	1	–	–
17	4 1/2– 5 1/2 yrs	Unknown	Prosser button—dish type	1	4	16
			Prosser button—dish type	1	4	18
18	3–5 years	Unknown	Prosser button—dish type	5	4	Unknown
			Prosser button—dish type	2	4	Unknown
			Shell	2	2	Unknown
			Prosser button—dish type	3	4	24
			Prosser button—dish type	1	4	16
19	Adult	Probable male	Prosser button—dish type	3	4	Unknown
			Two-prong vest or trouser buckle	–	–	1"
20	7–9 years	Unknown	Prosser button—pie crust	5	4	26
			Prosser button—dish type	1	4	26
			Prosser button—dish type	6	4	16
21	30 wks to term	Unknown	Prosser button—dish type	4	2	14
22	45–55 years	Male	Iron button—fragmented	–	–	–
23	No remains		N/A	–	–	–
24	34–36 wks to term	Unknown	N/A	–	–	–
25	25–30 years	Male	Prosser button—dish type	2	4	16
			Prosser button—dish type	1	4	20
			Bone	5	4	26
26	40–55 years	Female	Prosser button—pie crust	2	4	16
			Prosser button—pie crust	1	4	18
			Snap fastener	1	0	12
			Two-prong vest or trouser buckle	1	0	1"
27	3–5 months	Unknown	N/A	–	–	–
28	3–5 years	Unknown	N/A	–	–	–
29	32–38wks to term	Unknown	N/A	–	–	–
30	6 months–1 year	Unknown	N/A	–	–	–
31	No remains	Unknown	N/A	–	–	–
32	35–40 weeks	Unknown	Safety pin found at waist	1	–	–
33	2–5 months	Unknown	Prosser button—pie crust	2	4	16
			Prosser button—dish type	1	4	16
			Small wire fragments	–	–	0.07 inches
34	30 wks	Unknown	Prosser button—dish type	2	4	16
			Prosser button—elevated ring	1	4	16

Buttons were categorized by type, number of holes, and size given in button lines. This analysis follows the English lines sizing. Both the Sears, Roebuck and Co. and the Montgomery Ward & Co. 1895 catalog use this scale for selling buttons; a visual copy of the scale is in Montgomery ward and Co. catalogue number 57 on page 85 so customers could visualize the size of the buttons. This scale was also chosen because it is the scale most generally used by button collectors.

The method of attachment for buttons includes sew-through buttons, shank buttons of a variety of types, wedge shank buttons, cross bar, and stud type. Sew-through buttons generally have four or two holes, although three-way and five-way holes were also available. Shank buttons have a wire loop on the back of a variety of thicknesses and sizes by which the button was attached. Wedge shank buttons do not have a metal loop, but instead there is a portion of the button itself that is raised with a hole through that section of the button as a method for attachment. Cloth-covered buttons typically have a metal shank base underneath the cloth. Bone, Prosser, and shell buttons were available most often as sew-through buttons. Metal buttons were typically available as shank buttons. Rubber buttons and or composite buttons tended to have the wedge shank shape. Crossbar buttons were constructed of metal.

The Intermountain Antiquities Computer System (IMACS) manual describes button sizes used for different clothing items typically associated with male attire. Size 18 line buttons are associated with shirts, 23 lines with trousers, 30 lines with jackets or waistcoats, 27 lines with the pants fly, and 22 lines with sleeves (IMACS 2014). Sprague (2005) cautions the identification of types of clothing based on button line size because fashion changes through time. For example, the size of buttons for shirt closures may be 16 lines in one period but 20 lines in another.

Prosser Buttons

In the Sears, Roebuck and Co. 1898 catalog and in the Montgomery Ward & Co. 1895 catalog, Prosser buttons are listed as agate buttons or white fancy pearl agate. Plain Prosser buttons, dish type, are listed as agate buttons and piecrust buttons are listed as white fancy pearl agate buttons (Montgomery Ward & Co. 1895). Prosser buttons were revolutionary in the manufacturing of buttons. Until Richard Prosser patented the process in 1840, buttons were handmade. Prosser's design patented the first machinery for making porcelain/ceramic buttons. Utilizing his method, buttons were made by pressing dry porcelain clay into molds to form the shapes, turning them out of the mold and firing the clay at high temperatures (Sprague 2002). Prosser buttons came in a variety of styles and patterns, either white or colored.

Prosser buttons from Campbell's Bayou Cemetery were four-hole or two-hole sew-through buttons (Figure 15). They were found in various sizes in both the dish type and piecrust styles (see Table 9). One Prosser button with an elevated ring was found with Burial 34, but this style could not be matched to any sources. All individuals with buttons associated with their burial had at least one Prosser-type button.

In total, 73 Prosser dish type buttons were encountered in the 35 graves. The sizes range from 10 to 26 lines, with sizes 14 and 16 as the most popular. Piecrust Prosser buttons were larger than the regular Prosser dish type at Campbell's Bayou Cemetery. Piecrust buttons were only found in 16, 18, and 26 lines. Five of the 10 total piecrust buttons from the cemetery came from Burial 20 and were size 26.

Figure 15. Plain and pie-crust Prosser buttons.

Shell Buttons

Shell buttons were popular as early as the 1850s. By that time, these handmade shell buttons were almost as popular as bone or horn buttons. Generally, these early buttons were used for utilitarian purposes such as underwear or shirts (Rotman et al. 2000). Shell buttons were sold as pearl buttons in the Montgomery Ward & Co. 1895 catalog and the Sears, Roebuck and Co. 1898 catalog subsequent to becoming more affordable after Boepple's 1891 patent for mass production (Owens and Green 2000). At Freedman's Cemetery in Dallas, shell buttons were popular during the early period, 1869 to 1884, and spiked in popularity during the middle period, 1885 to 1899. Shell buttons were lacking at the Becky Wright, Eddy, Grafton, and Alameda-Stone cemeteries.

At Campbell's Bayou Cemetery, shell buttons were found with Burials 25 and 18 (Figure 16; see Table 9). Two utilitarian buttons generally found with underwear or shirts were present in Burial 18. Six buttons were found with Burial 25: five size 20 lines and one 16 lines. Size 20 line buttons were more consistent with a jacket, and size 16 lines with a shirt.

Bone Buttons

Four-hole, sew-through bone buttons were most popular between 1800-1865 (Rivers 1999). McGowan and Prangnall (2011) date bone buttons to 1833 to the late 1860s and South (1964) to 1837–1865. Bone buttons were also entirely lacking at the Becky Wright, Eddy, and Grafton cemeteries. Bone buttons were utilitarian and thus found on pants, jackets, and underwear. By at least the 1890s, bone buttons appear to have been replaced by black horn buttons. This is evidenced by the lack of bone buttons in the Montgomery Ward & Co. 1895 and Sears, Roebuck and Co. 1898 catalogs.

Figure 16. Two-hole shell button and a Prosser button.

Two male individuals at Campbell's Bayou Cemetery were found with bone buttons: Burials 2 and 25 (Figure 17; see Table 9). Each male had five bone buttons sizes 24 and 26 lines. These buttons do not appear to have been turned on a lathe due to the uneven depression surrounding the buttonholes. In addition, the button holes are also unevenly spaced, vary in size, and are drilled from the front and back of the button. The one item that does suggest lathe manufacture is a divot in the center of the button where a fifth hole would have been located. The presence of bone buttons suggest these burials date prior to 1870.

Figure 17. Bone buttons and one shell button.

"D-hole" Crossbar

Crossbar buttons are an unusual find in the archeological record. These buttons are termed crossbar or D-hole buttons due to the presence of a crossbar traversing the center of the button creating two D-shaped holes in the center of the button (Mainfort and Davidson 2006). Mainfort and Davidson (2006) also note that in 1889 these buttons were termed "japanned suspender buttons" and could be found in the Marshall Field and Co. catalog. D-hole buttons were first patented in the United States in 1873, but a British patent existed as early as 1844.

Two crossbar or japanned buttons were found with Burial 14 (Figures 18 and 19; see Table 9). One of the buttons was corroded and a pattern on the button was not visible. However, the second button had a diamond pattern. Only a single reference was found for japanned bar or crossbar buttons. The crossbar button found with Burial 14 at Campbell's Bayou Cemetery matches the suspender buttons from the Marshall Field and Co. catalog of 1889; this button also has the same type of japanned bar as that was found in Burial 15 with a tombstone dated 1890 at the Eddy Cemetery (Mainfort and Davidson 2006).

Figure 18. "D-hole"crossbar button, metal, and rubber buttons.

Figure 19. "D-hole" crossbar button, metal, and rubber buttons; reverse side.

Metal Buttons

Five metal buttons were found at Campbell's Bayou Cemetery. The majority of these were highly corroded and neither size nor attachment could be determined. One is a copper fastener, size 24 lines; however, the attachment could not be determined, although it is not a sew-through attachment. The iron button from Burial 13 could be measured and it is a size 12 line, four-hole sew-through button.

One snap a fastener was associated with Burial 26, a female (see Table 9). This burial also had piecrust Prosser buttons and a metal buckle. The use of snaps by males or females varied depending on the cemetery. At Cedar Grove Cemetery, snap fasteners were most consistently associated with female burials, but at Alameda-Stone Cemetery, snaps were found more often with males than females (Goldstein et al. 2012; Rose and Santeford 1985).

Rubber Buttons

A single rubber button was found at Campbell's Bayou Cemetery. This button from Burial 14 was a wedge shank button with an iron inlay design and was size 22 lines (see Figures 18 and 19; see Table 9).

Rubber buttons were manufactured after Charles Goodyear obtained a button patent in 1851 (Owens and Green 2000). Between 1850 and 1900, Goodyear's Novelty Rubber Co. (1855–1870s), and the India Rubber Company (1880s–1900s) produced rubber buttons (Owens and Green 2000). This rubber button from Burial 14 did not bear any marks or names to identify the manufacturing company.

Cinch Buckles

Cinch buckles used on vests or pants were found in Burials 5, 19, and 26 (Figure 20; see Table 9). These two-prong vest or trouser buckles are 1 inch in width. They match trouser and vest buckles found at the Cedar Grove Cemetery, Eddy, Becky Wright, and Alameda-Stone cemeteries. Davidson (2006) defines the specific type of cinch buckle as a type to buckle. This buckle was patented in 1854 and 1855 by Sheldon Heartshorn (Davidson 2006). The cinch buckle at Campbell's Bayou Cemetery is too corroded to identify an embossing mark. However, Davidson (2006) found an exact match in the 1889 Marshall Field and Co. catalogue.

Figure 20. Cinch buckle.

Safety Pins and Straight Pins

Straight pens can commonly be found in graves. These pins are associated with the closure of either clothing or a shroud in which the body was wrapped before burial. The use of shrouds was common and was a practice in which the deceased was washed and either tightly or loosely bound in a sheet or robe (Goldstein et al. 2012).

Safety pins were only found with infants and preterm babies at Campbell's Bayou Cemetery. Burials 12, 16, and 32 had safety pins (Figures 21 and 22; see Table 9). Two pins had bases that were difficult to type. Two pins, in Burials 12 and 16, had heads that could be matched to Minerva safety pins found in the Bloomingdale Bros. (1988) 1886 catalog. The safety pins associated with

Figure 21. Minerva safety pin and straight pin.

Figure 22. Minerva safety pin.

Burials 12 and 16 are consistent with the Type 1A safety pin typology designed for Freedman's Cemetery. Davidson (2006) notes that Type 1A safety pins were patented by Butler in 1878 and the first sale occurred in 1879. Neither the 1897 Sears, Roebuck and Co. catalogue nor the 1895 Montgomery Ward & Co. catalogue sold Minerva pins. At the Eddie Cemetery, Burial 14, a subadult with a potential interment date between 1880 and 1895 also contained a Minerva safety pin. The consistency with the Eddie Cemetery burial, the patent date in 1878, and the lack of this type of safety pin in the early 1890s catalog suggest these three individuals from Campbell's Bayou Cemetery were interred sometime between 1880 and 1895.

Rubber Comb

A hard rubber comb was found with the elderly female in Burial 7 (Figure 23; see Table 9). This individual exhibited trephination and the comb covered the trephined area of the skull. Hard rubber combs were not available until after the 1850s. Davidson (2006) notes that in 1866 the New York company of Weld, Andrews, and Leet offered 10 different varieties of hard rubber combs. The hard rubber comb found in Burial 7 is considered a back comb. An exact match can be found at the Eddie Cemetery with Burial Number 17 and can also be found in the Sweester, Pembrook and Co. 1891 catalog; the item cost $7 per gross. Interestingly, the hard rubber comb buried with Caroline Eddy at the Eddy Cemetery had the same tine broken as Campbell's Bayou Cemetery Burial 7. Caroline Eddie was buried in 1885, suggesting Campbell's Bayou Cemetery Burial 7 could date at least as early as 1885.

Figure 23. Hard rubber comb.

Miscellaneous Item

The "Papa's Pride" gold nameplate is consistent with a baby pin or cuff pin, but it was affixed to the outside of the coffin headboard of Burial 11 (Figure 24; see Table 9). Unlike the solid gold baby pins that are in the 1897 Sears, Roebuck and Co. catalogue No. 114, this pin was gold leaf on pressed metal.

Ovoid Lead Slug

An ovoid lead slug was found in the skull of the male in Burial 13 (Figure 25). Postmortem damage to the skull occurred prior to excavation. The head was rotated to the left with the slug placed on the right parietal. It then fell into the skull cavity during decomposition. The size, shape, and metal of this slug are consistent with a lead flint clamp for a flintlock gun. Flintlock rifles were used during the Civil War, but fell out of favor during the mid-1800s.

Figure 24. Gold foil nameplate, consistent with a cuff pin, which was affixed to the headboard of Burial 11.

Figure 25. Ovoid lead slug; possibly a flint lock clamp.

COFFIN BURIAL CONTAINERS

Coffin Shape

Burial containers at Campbell's Bayou Cemetery came in a variety of shapes and materials (Figure 26). Coffins are some of the earliest forms of burial containers. As opposed to the later rectangular burial containers known as caskets, coffins are generally six-sided with narrow heads, wide shoulders, and narrow feet. The second type of coffin shape found at Campbell's Bayou Cemetery is a tapered box that has a wide head tapering to narrow feet. The third shape is an oval-ended or elliptical coffin burial container. At Campbell's Bayou Cemetery, the shape was more ovoid than oval-ended. This may be due to coffin collapse of the side walls that was evident at the cemetery.

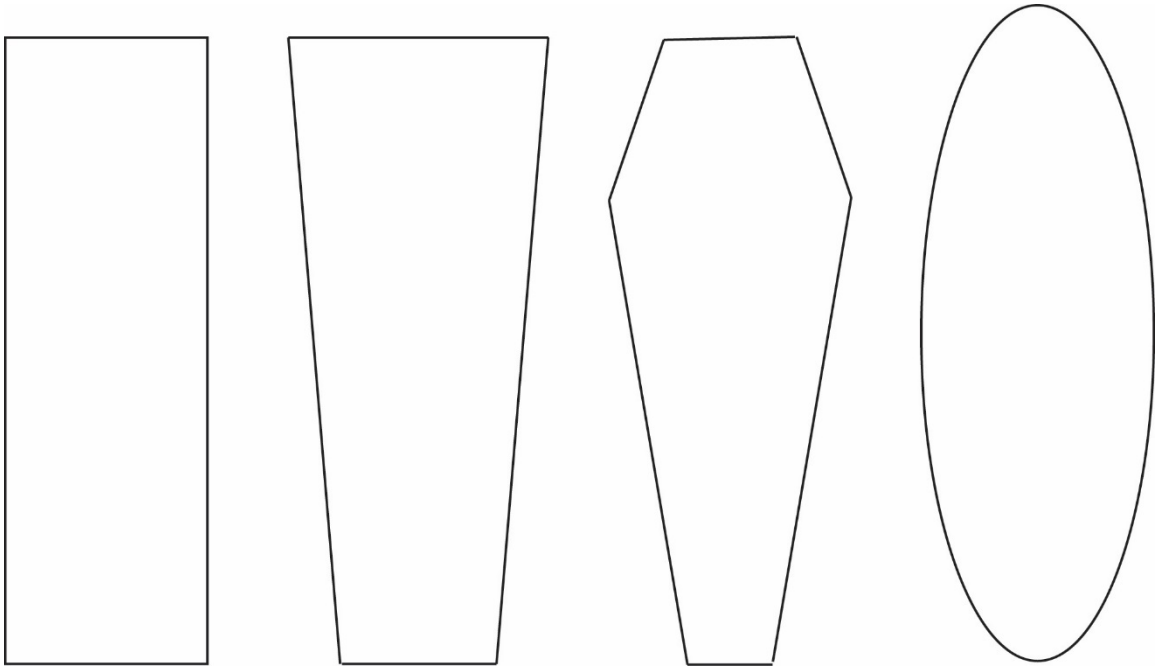


Figure 26. Coffin/casket shapes at Campbell's Bayou Cemetery.

Davidson (2006) discusses cemeteries that contain tapered coffins and in each of these cases, the dates for the cemeteries extend no later than the mid-1800s. Oval-shaped coffins can be found in several of the later coffin hardware catalogs, and the oval shape was sketched on the first patents obtained for rectangular caskets. This patent was issued in 1859.

Burial containers at Campbell's Bayou Cemetery consisted of seven hexagonal, two tapered, 23 rectangular, and two oval.

The shape of the metallic coffin (Burial 22) was hexagonal with double lug, short-bar handles. This metallic coffin was made of cast iron. It had a viewing window, and the lid was closed with ornate rivets. The viewing window most closely matches Freedman's Cemetery window type C. Unfortunately, the base of this casket from the waist down had been impacted by heavy equipment

or other forces that bent the left side of the coffin until it touched the right side. The femora, tibia, fibula, tarsals, and metatarsals skeletal elements were caught underneath this bent section. This suggests that damage to the coffin occurred after burial and decomposition took place. The metallic coffin was found in a large disturbed area suggesting backhoe damage.

Viewing windows were present on four burials (Table 10). All were ovoid in shape and had a wood cover over the window. Presence of a window was random and did not correlate with age or sex.

Table 10
Viewing Windows

Burial	Age	Sex	Viewing Window	Maximum Size (cm) Length	Width	Paint
3	0–3 months	Unknown	Ovoid	27	17	Red
7	60+ years	Female	Ovoid	60	29	Red
11	6 years	Unknown	Ovoid	38	20	
22	45–55 years	Male	Ovoid			Metallic coffin

Container Construction

Construction materials for coffins at Campbell's Bayou Cemetery include the one metallic coffin. The rest of the coffins were made of wood. Wood preservation was excellent and the entire coffin as well as outer boxes or wood arches were complete and intact. Field crew members were able to remove entire planks while exhuming the remains. Separation of coffin or casket wood from arch wood was very easy to discern because of the state of preservation.

Macrobotanical samples, which included entire wood planks or large sections of wood planks, were sent to Leslie L. Bush for analysis. Samples included arch wood, outer box wood, and coffin and casket wood. Samples from hexagonal coffins, tapered coffins, rectangular caskets, and containers with the viewing windows were chosen. In addition, samples were chosen from burials that appeared to represent different time frames in which interment occurred at Campbell's Bayou Cemetery. All of the samples were identified as southern yellow pine. Bush states that southern yellow pine includes the four common species found in East Texas: longleaf pine, shortleaf pine, loblolly pine, and slash line. Samples were from Burials 3 (casket wood), 10 (casket wood), 11 (coffin wood), 15 (arch and casket wood), 16 (casket wood), 26 (arch and casket wood from the bottom of the casket), and 27 (casket wood).

Coffin Paint

Red and white painted coffins were found at the Eddy and Wright cemeteries—12 of 16 at Eddy and 7 of 10 at Wright. The Vogetly cemetery also had a high percentage of painted coffin burials. Most of the painted burials were typically red and were juvenile interments: 78 percent of the 96 painted coffins. At the Vogetly Cemetery, painted coffins reflect German traditions (Ubelaker and Jones 2003).

Both white and red paint is evident at Campbell's Bayou Cemetery (Table 11; Figure 27). Of the seven burials with paint, four were red and three were white. Unlike Vogetly, painted coffins did not correlate with age or sex of the individual. Given the excellent preservation of wood at Campbell's Bayou Cemetery, it is highly unlikely that the incidences of red paint are related to poor preservation of white paint. Rather, it may have been a choice to use the inexpensive red ocher to decorate the coffins.

Table 11
Burials with Paint

Burial	Age	Sex	Shell on Arch or Container Lid	Viewing Window	Maximum Size (cm) Length	Width	Paint
3	0–3 months	Unknown	No	Ovoid	27	17	Red
5	9–11 years	Possible male	No				White
7	60+ years	Female	No	Ovoid	60	29	Red
8	25–35 years	Probable male	No				Red
16	32 wks to term	Unknown	Yes				Red
17	4 ½–5 ½ yrs	Unknown	No				White
24	34–36 wks to term	Unknown	Yes				White

Figure 27. Coffin wood with paint from Burial 16.

WOOD ARCH AND NICHES

In many instances, grave shafts are dug as rectangular shafts and the coffin/casket or an individual wrapped in a burial shroud is placed at the bottom. Variations in grave shaft construction include the use of outer boxes and vaulting with niches. Outer boxes, the container in which the coffin or casket was shipped from the manufacturer, served as protective containers into which the coffin or caskets were lowered. This practice reinforced the coffin/casket, providing protection from the weight of the grave fill. Preference for outer boxes coincided with mass manufacturing of burialcontainers. Vaulting was also used as a method for temporarily protecting the coffin/casket from collapsing due to the heavy fill and prevented slump as the coffin/casket and body decayed.

Vaults were created by excavating the grave shaft to a depth shallower than the intended grave depth (Figure 28). A niche was dug into the center of the grave shaft that was large enough to contain the coffin or casket. This niche created a shelf on which unattached planks of wood were placed perpendicular to the coffin or casket. This type of construction is also termed an arch, coffin board, or vaulted lid (Bybee 2002; Davidson 2006; Goldstein et al. 2012).

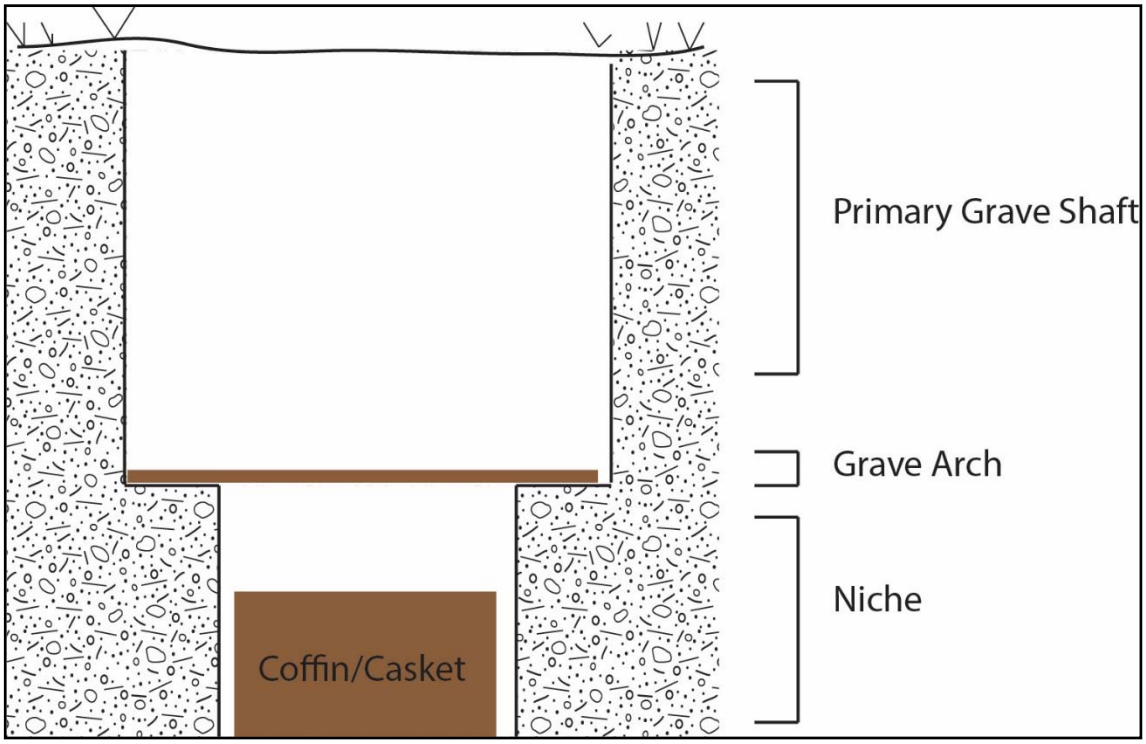


Figure 28. Vault burial construction.

Vaulting is common in historic cemeteries and was more common in the south (Davidson 2006). At Campbell's Bayou Cemetery, 15 of the 34 graves, 43 percent, were vaulted. Vaulting had no correlation with age of the individual, sex of the individual, or coffin styles. Five of the 34 burials contained outer boxes, and Burials 8 and 16 both had vaults and outer boxes. The presence of a vault and an outer box in the same grave is unusual.

The presence of vaulting suggests the coffins and caskets were manufactured locally. During the latter half of the nineteenth century, mass production of coffins and caskets resulted in their shipment from the manufacturer. These coffins and caskets arrived in a crate used for transport. This crate became the outer box used during burial. One manufacturer's catalogue, Hamilton, Lemon, Arnold and Co. 1884, separately sold outer boxes to the public. These outer boxes sold between $4 and $9 for "Chestnut Outside Boxes." Caskets and coffins made locally would not have had a crate available to use during burial if vaulting was chosen.

GRAVE DECORATION

At Campbell's Bayou Cemetery, descendants placed empty alcoholic and ginger beer bottles, decorative items, figurines, vases, and flowers on the graves. Several graves were outlined with ginger beer bottles (Figures 29–32).

Figure 29. Bottle from surface of cemetery.

SHELL GRAVE INCLUSIONS

Shell coverings on graves are commonly found in the south. In Texas, shell decoration is present along the coast, the coastal plain, and southeastern, northern, and northeastern Texas. Shells were used as grave decorations in numerous cultures and were regularly used in Texas; 48 percent of the cemeteries in Southeast Texas, 44 percent in the Pineywoods, and 44 percent in the Cross Timbers in North Texas had shell decorations (Jordan 2004). Anglo-American, Afro-American, Native American, Mexican, and German cemeteries all have shell decorations on the graves (Jordan 2004). The shells are typically washed and boiled to create a white shell and placed loosely on top of the grave or to outline the grave, or set in concrete.

Figure 30. Ginger beer bottle from the surface of the cemetery.

Figure 31. Hand blown bottle from the surface of the cemetery.

Figure 32. Stamped bottle from the surface of the cemetery.

Archeological reports discuss the presence of shells decorating the tops of graves. The Old Bethel Cemetery in Kentucky has 110 burials decorated with shell (Mabelitini 2007). At Terrell Cemetery in Kentucky, the grave of Zerelda E. Terrill has mussel shell under the grave marker and in the burial shaft fill (Favret 2008), and at the Bates Cemetery in Denton County, Texas, a bed of shell was found between two grave shafts (Tiné 2007).

Campbell's Bayou Cemetery does have a few mussel shells on the surface decorating graves, but shell inclusions were also found directly on coffin lids, outer box lids, or wood arches (Table 12; Figures 33 and 34). Shell was not found throughout the grave shaft, and the presence directly associated with the lids suggests purposeful inclusion. Archeological literature describing this specific burial practice could not be located. At Campbell's Bayou Cemetery, shell was found directly on the lids of 12 graves. Presence of the shell did not correlate with age, sex, or type of burial container. Shell amounts placed on the lid were either a handful (about 7–10) of large shells or a concentrated mass of smaller shells.

The significance of mussel shell in graves is not known. Jordan (1982) notes the use of shell on graves in Africa and Nigeria. Shells are also noted in Greek and Roman monuments and Mexican, Hispanic, European, and Native American graveyards (Heege 1998).

Shell inclusion in the grave fill at Campbell's Bayou Cemetery is unique. Though the significance of mussel shell with graves is unknown, shells have religious significance to the Irish. This is significant because James Campbell emigrated from Ireland and may have brought this tradition with him.

Table 12
Burials with Shell on the Coffin/Casket Lid or Arch

Burial	Age	Sex
4	No remains	N/A
9	No remains	N/A
11	6 years	Unknown
12	3–months	Unknown
15	4–7 months	Unknown
16	32 wks to term	Unknown
19	Adult	Probable Male
24	34–36 wks to term	Unknown
25	25–30 years	Male
26	40–55 years	Female
27	3–5 months	Unknown
31	No remains	N/A

Figure 33. Shell found on the lid of Burial 16.

Figure 34. Small shell found in concentrations on the coffin, casket, or arch lids.

Shell has been found in more than 30 thirteenth-century graves from Mullingar, County Westmeath, and at St. Mary's Cathedral, Tuam, County Galway, in Ireland. Shell was connected with the apostle James, and typically, when shell is found in a burial, its presence showed that this individual made a pilgrimage to the apostle's grave at Santiago de Compostela in northern Spain (Riain-Raedel 1998). The pilgrimage to the Cathedral of Santiago de Compostela was one of the three most important Christian pilgrimages, any of which could result in a plenary indulgence freeing a person from the penance due for their sins. The Irish were extensively involved in this pilgrimage. Shells were sold in the vicinity of the Santiago de Compostela, and pilgrims brought these home as a memento of their travels.

The presence of shell on the coffin/casket lids may symbolize the pilgrimage to the Cathedral of Santiago de Compostela that could result in freeing a person from their penance due for sins. Given they could not take this pilgrimage, these shells may represent the desire to do so. Alternatively, the shells may represent the prayer to St. James that asks to be victors in the strife of this life and to deserve receiving the victor's crown in heaven, thus assisting them in their journey to heaven. The prayer to St. James is as follows:

> O glorious Apostle, St. James, who by reason of thy fervent and generous heart wast chosen by Jesus to be a witness of His glory on Mount Tabor, and of His agony in Gethsemane; thou, whose very name is a symbol of warfare and victory: obtain for us strength and consolation in the unending warfare of this life, that, having constantly and generously followed Jesus, we may be victors in the strife and deserve to receive the victor's crown in heaven. Amen [Prayer to St. James the Apostle 2014]

The connection of Irish traditions and the pilgrimage to Santiago de Compostela is likely related to the Irish roots of the Campbell family.

POTENTIAL IDENTIFICATION OF KNOWN INDIVIDUALS

Potential identification of individuals reported to be interred in Campbell's Bayou Cemetery (Table 13) was attempted through use of coffin hardware and personal artifacts to date the graves. In addition, sex of the individuals, age-at-death, occupational data (various types of labor leave distinct skeletal muscle attachments), and pathological conditions (known diseases for specific individuals leave skeletal evidence) provide essential information for estimating individuals interred. Estimated dates of death for individuals that are thought to be interred relied upon family recollections, reconstructions from census records, and a genealogical chart of the Campbell family found on ancestry.com ("CAMPBELL'S BAYOU CEMETERY" 2014). The 1860, 1870, 1880, and 1900 census records were extensively relied upon to identify the presence of the potential individuals in the Virginia Point area as well as track individuals to assist in narrowing the date of death. The 1850 and 1890 census data were not available for Galveston County. Descendant information provided interment dates for several individuals whereas others were estimated based on census data that resulted in date ranges for interments, particularly for the Parr children. Potential date ranges are provided in Table 14 and note the multiple years an individual could have been interred. It must be noted that the identifications are estimates only, or best fit, and do not confirm a correlation between an individual and a specific burial.

Correlation between infants and graves proved difficult. Several of the graves in the cemetery could only be dated as pre-1900. The lack of coffin/casket hardware and/or personal artifacts precludes information to narrow the interment period. Additionally, ages for the infants provided by family members and in genealogical reports are not specific enough to narrow the potential correlations. In many instances, the designation was "infant," and the "pre-1900" grave date did not assist in narrowing the time frame for burial. Many of the burials encountered are expected to correspond to "potential individuals" buried at Campbell's Bayou Cemetery. Only two individuals are clearly associated with a specific interment. Burial 6 was a concrete crypt with brick surrounding and covering the lid. Documents state that two of the Parr children died within a few hours of each other from "quinsy" and were buried together. A brick mason, S King, built a brick vault for the boys. Though the documents state the boys were 4 and 2 at the time of death, associating an age with a term passed down such as "little boys" is dependent upon the definition. "Little boy" could indicate toddlers between 2 and 4, infants, or an infant and toddler. The skeletal remains from Burial 6 are those of a term infant and a 12–15-month-old child. For eight other individuals, the preponderance of the evidence suggests that they may be associated with a specific grave (see Table 13). Grace (Greace) Dick most closely correlates with Burial 17. She is known to have been the last burial at the cemetery and her age and the date of the burial correlate well. Mary Parr and Eddie Parr were either buried in Burial 18 or 28. Their reported ages-at-death of 3-5 years of age fall within the skeletal age range that is difficult to separate into smaller age categories. Temporal data from the coffin hardware could not be refined to separate the interments of these two children. Charles Munson is the most likely candidate to have been interred in Burial 11. The age-at-death and date of interment are the best suited for this burial.

Phoebe Rutlage likely was interred in Burial 10. Burial 10 is a female who died between 1874 and 1905. Though that is a large block of time, the burial is that of an adult female. Phoebe Rutlage was approximately 35 when she died in the 1890s. She became ill, and Diana Campbell Parr and daughter Jennie Parr nursed her until her death. The only significant pathological condition at Campbell's Bayou Cemetery was identified in Burial 10. The female from Burial 10 suffered from osteomyelitis. Osteomyelitis is a bone infection that results in fever, pain, and immobility, particularly in the affected limb. Before antibiotics, osteomyelitis was usually fatal.

Table 13
Potential Individuals Interred in Campbell's Bayou Cemetery

Last Name	First Name	Age	Date of Death*	Possible Burial
Armstrong	Manda	76+	1870+	No evidence
Campbell	Frank	13–15	1819–1834, 1835–1836, 1837–1850	5
Campbell	Mary Jane	8–9	1816–1834, 1835–1836, 1837–1850	20
Campbell	Joseph	1	1870s	
Campbell	Charlotte	3	1870s	
Campbell	James	64	1856	1, 2
Campbell	Mary	84	1884	7
Dick	Leona	0	1895	
Dick	Ninnie	30	1884	25, 19, 13
Dick	Greace	3–4	1904	17
Dick	infants	unknown	1889	
Dick	infants	0–1	1892	
Dick	Benjamin	unknown	unknown	
Dorset	unknown	2	1897	
Gordy	Eva	0	1886	
Gordy	infants	6 mo–1 year	Unknown	
McNeil Sr.	Shelby	50s	1870–1900	13, 14, 19
McNeil Jr.	Shelby	15 in 1885	Post 1890	8, 13, 19
McNeil	Runnels	Unknown	Unknown	No evidence
Meyers	Charlie	70+	1885	14, 19
Munson	Charles	5	1884	11
Parr	Joseph	1	1871, 1872, 1873, 1874	6
Parr	Levi	0	1871, 1872, 1873, 1875	6
Parr	Eddie	3	1875, 1877, 1880	18, 28
Parr	Frank	1	1877, 1879, 1882	
Parr	Mary	5	1886	18, 28
Parr	Elizabeth	6 mo	1854–1858, 1861, 1867–1880	
Rutlage	Phoebe	35	1890s	10
Toohey	Infant	6 mo		
Westerlage	Caroline	Unknown	Unknown	

Source: "CAMPBELL'S BAYOU CEMETERY": Names taken from *Galveston County Tombstones Volumes 1 and 2*

*Some dates are extrapolated based on census and sibling data.

The ages of Frank and Mary Jane Campbell most closely match Burials 5 and 20, respectively. The historically documented age for Frank was 13–15 years and 8–9 years for Mary. Though the assessed skeletal ages were 9–11 for Burial 5 and 7–9 for Burial 20, evaluation of remains for individuals in Burials 5 and 20 indicates they were both sickly and suffered repeated bouts of malnutrition and disease. Increased stress and the physical burdens of being sick would cause underdevelopment of the individual in terms of height and skeletal maturity, and thus this potential disparity in their documented ages and skeletal assessments may be due to this underdevelopment. If these are their interments, they indicate Campbell's Bayou Cemetery was established between 1838 and 1856.

Table 14
Estimated Association between Burial and Potential Individuals Identified as Buried in Campbell's Bayou Cemetery

Burial	Age	Sex	Date of Death	Individual
1	50–60	Male	<1905	James Campbell
2	older adult	Male	<1870	James Campbell
3	0–3 months	Unknown	1881–1905	Excludes most of the Parr children
4	Child	Unknown	1865–1881	–
5	9–11 yr	Probable male	1890+	Frank Campbell
6-1	0–1 mo.	Unknown	<1905	Levi Parr
6-2	12–15 mo.	Unknown	<1905	Joe Parr
7	60+	Female	1871–1905	Mary Campbell
8	25–35	Probable male	1893–1905	Shelby McNeal Jr.
9	No remains	Unknown	<1905	–
10	Adult	Probable female	1874–1905	Phoebe Rutlage
11	6 years	Unknown	c. 1881	Charles Munson
12	3–6 months	Unknown	1877–1895	–
13	adult	Probable male	<1905	Minnie[sic] Dick, Shelby McNeil Jr., Shelby McNeil Sr.
14	55–60+	Probable male	1880–1905	Charlie Meyers, Shelby McNeil, Sr.
15	4–7 mo.	Unknown	1880–1905	–
16	32 wks to term	Unknown	<1905	–
17	4 ½–5 ½ yrs	Unknown	1896–1905	Greace Dick
18	3–5 yrs	Unknown	<1905	Mary Parr, Charlotte Campbell, Eddie Parr
19	Adult	Probable male	1880+	Ninnie Dick, Charlie Meyers, Shelby McNeil Jr., Shelby McNeil Sr.
20	7–9 yrs	Unknown	1840–1905	Mary Jane Campbell
21	30 wks to term	Unknown	<1905	–
22	45–55	Male	1875–1880s	Unknown individual
23	no remains		<1905	–
24	34–36wks to term	Unknown	<1905	–
25	25–30	Male	<1905	Ninnie Dick
26	40–55	Female	1890–1905	–
27	3–5 months	Unknown	<1905	–
28	3–5	Unknown	<1905	Mary Parr, Charlotte Campbell, Eddie Parr
29	32–38wks to term	Unknown	<1905	–
30	6mth– 1 year	Unknown	<1905	–
31	no remains	Unknown	<1905	–
32	35–40 weeks	Unknown	<1905	–
33	2–5 mo.	Unknown	1881–1905	Excludes most of the Parr children
34	30 wks	Unknown	<1905	–

James Campbell closely matches the descriptions of both Burials 1 and 2. Burial 2 probably dates earlier than Burial 1 based on the presence of bone buttons, the use of which likely correspond to more closely to the date of Mr. Campbell's death. No other potential individuals on the list fit the criteria and dating needed to be associated with James Campbell. Burial 2 also has a button found at the knees, consistent with wearing short breeches, which was typical dress for a privateer. Mary Campbell best fits with Burial 7. Burial 7 is a female, age 60+, with an interment date between 1871 and 1905 and correlates better than the other female burials.

Correlation of the remaining individuals reportedly buried in Campbell's Bayou Cemetery is significantly less certain. Correlation between infants and graves is exceedingly difficult. Burials falling under this category include Burials 9, 16, 21, 23, 24, 27, 29, 31, 32, and 34 (see Figure 11). Similarly, the ages at death for a number of adults and the coffin hardware did not provide sufficient data to assign the individual to a particular burial. Rather, potential burials with which they could be associated are presented in Table 13.

SUMMARY

Campbell's Bayou Cemetery was successfully relocated in advance of remediation of the Environmental Protection Agency-selected remedy for the Malone Service Company Superfund Site. Exhumation of the remains was conducted in accordance with the 405th Judicial District order (Cause No 13CV0762; Appendix A) that Land Navigator be allowed to disinter and relocate to the perpetual care cemetery operated by FPE any human remains found in or in the vicinity of the cemetery area. This work was done in accordance with the provision of the Health and Safety Code, Sections 711.004 and 711.010 (Appendix B). The remains were exhumed in April and May 2014. This process resulted in the recovery of 34 burials which included 35 individuals. No graves were marked by headstones. Wood preservation was excellent in a majority of the burials, and all but one burial had at least 80 percent of the wood intact. Bone preservation was poor in grave shafts that lay directly on the water table, but the wood was better preserved in these graves. The condition of the remains was often poor; therefore, the identification of pathologic conditions and aging or sexing the individuals was difficult due to incomplete remains.

By combining the bioarcheological analysis, coffin shape and style, and the mortuary hardware, a firm date of the cemetery establishment was moved from approximately 1856 to the late 1830s with the terminal date still at 1904. The first burials in the cemetery were probably Frank and Mary Campbell, both who would have died after the arrival of the family at Campbell's Bayou on Virginia Point. According to family records, it can be extrapolated Mary Jane Campbell was born in 1835 and died in 1843/1844, and Frank was born in 1836 and died in 1849/1850, both before the death of their father in 1856. The second individual buried next to James Campbell is a mystery, and it is unknown if this male was buried before, after, or simultaneously with James.

Descendant identifications of individuals thought to be interred at Campbell's Bayou Cemetery were relatively reliable. Burials could not be conclusively associated with any individuals identified by the descendants; however, the combination of bioarcheological analysis, coffin/casket hardware analysis, census data, and descendant identifications resulted in a list of individuals that may have been interred in certain graves. The adult individuals identified with some certainty were James and Mary Campbell and Phoebe Rutlage. Children were difficult to identify, but there is good potential the graves of Frank Campbell, Mary Jane Campbell, Charles Munson, and Grace (Greace) Dick were identified. Levi and Joe Parr were conclusively identified as interred in Burial 6, the concrete crypt with brick covering.

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APPENDIX A

COURT ORDER

CAUSE NO. 13CV0762

2014 FEB 11 PM 2:50

EX PARTE:	§	**IN THE DISTRICT COURT**
	§	
	§	
LAND NAVIGATOR, LTD.	§	**GALVESTON COUNTY, TEXAS**
	§	
	§	
	§	**405th JUDICIAL DISTRICT**

ORDER

On this day the Court heard Petitioner, LAND NAVIGATOR, LTD.'s ("Land Navigator"), Motion for Summary Judgment. After considering the Motion, response, if any, and argument of counsel, the Court is of the opinion that Land Navigator's Motion should be granted. It is, therefore,

ORDERED that Land Navigator's Motion for Summary Judgment as to all claims and causes of action is hereby GRANTED, and that Land Navigator be allowed disinter and relocate to the perpetual care cemetery operated by Forest Park East Cemetery any human remains found in the real property as described as an area of land comprising about four (4) acres, located within a larger tract described in a deed to Land Navigator as recorded in Clerk's File No. 2001066777 in the Galveston County Clerk's Office, and more particularly described as:

> A 4.194 acre tract in the Sam Bundick League, Abstract No. 7, Galveston County, Texas. Said 4.194 acre tract is part of a tract described in a deed to Land Navigator, LTD. as recorded in Clerk's File No. 2001066777 in the Galveston County Clerk's Office and is more particularly described as follows:
>
> COMMENCING at a 5/8-inch iron rod found for the most westerly corner of said Land Navigators LTD. tract;
>
> THENCE, North 83°22'41" East for a distance of 1,402.09 feet to the POINT OF BEGINNING and west corner of the herein described tract, said point has a Texas Coordinate System of 1983, South Central Zone grid value of N 13,692,110.39, E 3,272,768.30.

THENCE, North 40°27'29" East, along the westerly line for a distance of 492.81 feet to the north corner of the herein described tract THENCE, South 52°27'54" East, along the northerly line for a distance of 370.00 feet to the east corner of the herein described tract; THENCE, South 38°19'06" West, along the easterly line for a distance of 471.82 feet to the south corner of the herein described tract; THENCE, North 55°28'06" West, along the southerly line for a distance of 389.22 feet to the POINT OF BEGINNING, containing a computed area of 4.194 acres (182,671 square feet).

("Real Property");

IT IS ALSO ORDERED THAT, any dedication, implied easement or designation for cemetery purposes that affects the Real Property be removed and has no further effect or burden on the Real Property.

Land Navigator or Forest Park East will perform all services required by the provisions of the Health and Safety Code, Sections 711.004 and 711.010, including, but not limited to, the required record keeping and securing of required permits, all at the sole cost and expense of Land Navigator.

SIGNED this 11th day of February, 2014

JUDGE PRESIDING

I, John D. Kinard, District Clerk and Custodian of Records for District Courts of Galveston, County, Texas do hereby certify that the foregoing is a true and correct copy of the original record, now in my lawful custody and filed in this office on the 17 day of February 2014 witness my official hand and seal of office this 1 day of April 2014

JOHN D. KINARD, DISTRICT CLERK
Galveston County, Texas
By _____ Deputy

APPENDIX B

DISINTERMENT PERMITS

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #1	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #2	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #3	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine L. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #4	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris
Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:

Full Name of Deceased:	Date of Death
UNKNOWN BURIAL #5	UNKNOWN
Place of Death:	State File Number
UNKNOWN	---
Name of Cemetery	
CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County
	GALVESTON

Part II. Information relating to person in charge of disinterment

Name of PHD:	License Number
SUPERVISING ARCHEOLOGIST: DUANE E. PETER	

Address:

2201 K AVENUE, SUITE A2
PLANO, TX 75074-5977

Part III. Authorization

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris
Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #6	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine L. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #7	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine L. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #8	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #9	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris
Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #10	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine S. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:

Full Name of Deceased:	Date of Death
UNKNOWN BURIAL #11	UNKNOWN
Place of Death:	State File Number
UNKNOWN	---

Name of Cemetery
CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE

City	County
	GALVESTON

Part II. Information relating to person in charge of disinterment

Name of PHD:	License Number
SUPERVISING ARCHEOLOGIST: DUANE E. PETER	

Address:
2201 K AVENUE, SUITE A2
PLANO, TX 75074-5977

Part III. Authorization

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris
Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #12	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine L. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #13	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #14	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #15	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris

Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #16	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #17	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris
Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #18	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris

Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #19	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Signature of State Registrar

Date: 4/15/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #20	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine A. Harris

Date: 4/15/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #21	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris
Signature of State Registrar

Date: 4/17/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #22	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/17/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #23	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris

Date: 4/17/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #24	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris
Signature of State Registrar

Date: 4/17/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #25	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	
Permission is granted to move the body from the present place of burial to: **FOREST PARK EAST CEMETERY** **WEBSTER, HARRIS COUNTY, STATE OF TEXAS**	
Date: 4/17/2014	Geraldine K. Harris Signature of State Registrar
Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ	

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #26	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	
Permission is granted to move the body from the present place of burial to: **FOREST PARK EAST CEMETERY** **WEBSTER, HARRIS COUNTY, STATE OF TEXAS** Geraldine L. Harris Signature of State Registrar Date: 4/17/2014	
Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ	

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #27	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/17/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #28	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine L. Harris

Signature of State Registrar

Date: 4/17/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #29	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine L. Harris

Date: 4/17/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #30	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine R. Harris

Date: 4/17/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #31	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Date: 4/24/2014

Geraldine L. Harris
Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #32	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine L. Harris

Date: 4/24/2014 Signature of State Registrar

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #33	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	

Permission is granted to move the body from the present place of burial to:

FOREST PARK EAST CEMETERY
WEBSTER, HARRIS COUNTY, STATE OF TEXAS

Geraldine K. Harris
Signature of State Registrar

Date: 4/24/2014

Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #34	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	
Permission is granted to move the body from the present place of burial to: **FOREST PARK EAST CEMETERY** **WEBSTER, HARRIS COUNTY, STATE OF TEXAS**	
Date: 4/24/2014	Geraldine R. Harris Signature of State Registrar
Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ	

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

DISINTERMENT PERMIT

DEPARTMENT OF STATE HEALTH SERVICES, TEXAS VITAL STATISTICS

Part I. Information relating to the deceased:	
Full Name of Deceased: UNKNOWN BURIAL #35	Date of Death UNKNOWN
Place of Death: UNKNOWN	State File Number ---
Name of Cemetery CAMPBELL BAYOU CEMETERY, MALONE SERVICE COMPANY SUPERFUND SITE	
City	County GALVESTON
Part II. Information relating to person in charge of disinterment	
Name of PHD: SUPERVISING ARCHEOLOGIST: DUANE E. PETER	License Number
Address: 2201 K AVENUE, SUITE A2 PLANO, TX 75074-5977	
Part III. Authorization	
Permission is granted to move the body from the present place of burial to: **FOREST PARK EAST CEMETERY** **WEBSTER, HARRIS COUNTY, STATE OF TEXAS**	
Date: 4/24/2014	Geraldine K. Harris Signature of State Registrar
Note: No separate burial-transit permit is required unless the body is being shipped by common carrier or is being moved across state lines. JMARTINEZ	

VS - 2219 REV. 9/04 The penalty for knowingly making a false statement in this form can be 2 - 10 years in prison a fine of up to $10,000. (Section 195, Health and Safety Code)

APPENDIX C

BURIAL FORM SAMPLE

VERSAR

BURIAL EXCAVATION FORM

Project Name/Number: _____ Site Number:_____

Burial Number_____ Page ____of ____

Excavator(s):_____ Date: _____

Grave Shaft:
Shape: _____

Orientation of long axis: _____

Length: _____

Width: _____

Soil Type/Color:

Grave fill:_____

Surrounding soil:_____

Depth to top of burial container:_____

Depth to bottom of burial container/grave:_____

Burial Container:

Outer Box:

(check one) Yes:____ No:_____ Other (specify):_____ Indeterminate:_____

Shape:_____

Material:_____

Length:_____ Width at headboard:_____

Width at shoulders:_____ Width at footboard:_____

Inner Box:

(check one) Yes:_____ No:_____ Indeterminate:_____

Other (specify)_____

Shape:_____

Material:_____

Length:_____ Width at headboard:_____

Width at shoulders:_____ Width at footboard:_____

Project Name/Number: _____ Site Number:_____

Burial Number_____ Page ____ of ____

Excavator(s):_____ Date:_____

Viewing Window:

(check one) Yes:_____ No:_____

Shape:_____

Long axis length:_____ Short axis length:_____

Description of grave, burial container(s), associated artifacts, and unassociated artifacts:

(Use back of sheet if necessary)

Project Name/Number: _____ Site Number:_____

Burial Number_____ Page ____ of ____

Excavator(s):_____ Date:_____

Preservation: (check one)

Excellent_____ Good_____ Fair_____ Poor_____

Interment Type: (check all that apply)

Single_____ Double _____ Multiple_____ Fragmentary _____ Mass _____

Body Deposition: (check one)

On back_____ On face_____ On side _____ Sitting/Seated _____ Standing _____

Other (specify)_____ Indeterminate_____

Articulation: (check one)

Articulated____ Semi-Articulated ____ Disarticulated _____ Disturbed_____ Indeterminate____

Body Preparation: (check one)

Extended_____ Flexed_____ Semi-flexed_____ Indeterminate_____

Burial Position: (check one)

Body, Trunk or Thigh
Extended_____ Flexed_____ Semi-flexed_____ Tightly Flexed _____ Indeterminate_____

Knee
Extended_____ Flexed_____ Semi-flexed_____ Tightly Flexed _____ Indeterminate_____

Arms
Extended_____ Flexed_____ Semi-flexed_____ Tightly Flexed _____ Indeterminate_____
Extended 180, Semi-Flexed 180-190, Flexed 90-10, Tightly Flexed 180-360

Orientation: **Vertebral column:**

Cranium - Pelvis:_____ Orientation:_____

Head-Foot :_____

Position of Head

Normal Yes No Rotational Turn No Left Right Lateral Tilt (head to ear) Right Left

Perpendicular Nod None Tipped Forward Tipped back

Project Name/Number: _____ Site Number:_____

Burial Number_____ Page ____ of ____

Excavator(s):_____ Date:_____

Arms: (check all that apply)

	Left	Right
Extended	____	____
Folded	____	____
Crossed	____	____
Indeterminate	____	____

Hands: (check all that apply)

	Left	Right
Over R. Hip	____	____
Over L. Hip	____	____
Over R. Shoulder	____	____
Over L. Shoulder	____	____
At Side	____	____
Other (specify)	____	____
Indeterminate	____	____

Project Name/Number: _____ Site Number:_____

Burial Number_____ Page ____ of ____

Excavator(s):_____ Date:_____

Description of skeleton and burial position (include any measurements or demographic, pathological, or taphonomic observations):_____

(Use back of sheet if necessary)

Project Name/Number: _____ Site Number:_____

Burial Number_____ Page ____ of ____

Excavator(s):_____ Date:_____

List number of artifacts present for each area.

	AREA				
MORTUARY ARTIFACTS	**A**	**B**	**C**	**D**	**E**
Outer Box Handle					
Iron Band					
Outer Box Lid Fastener					
Outer Box Hinge					
Inner Box Hinge					
Coffin/Casket Handle					
Coffin/Casket Lid Fastener					
Coffin Screw					
Thumbscrew					
Escutcheon					
Caplifter					
Plaque					
Ornamental Tack					
Cut Nail					
Wire Nail					
Lining Tack					
Utilitarian Screw					
Corrugated Fastener					
Viewing Window Glass					
Coffin/Casket Fabric (exterior)					
Coffin/Casket Fabric (interior)					
Unidentified Metal					
Other_____					

A=Skull **B**=Upper Right **C**=Upper Left **D**=Lower Right **E**=Lower Left

(Superior iliac crest separates upper half from lower).

Project Name/Number: _____ Site Number:_____

Burial Number_____ Page ____ of ____

Excavator(s):_____ Date:_____

List number of artifacts present for each area.

	AREA				
PERSONAL ARTIFACT (historic)	**A**	**B**	**C**	**D**	**E**
Glass Button					
Bone Button					
Shell Button					
Porcelain Button					
Metal Button					
Synthetic Button					
Stud					
Straight Pin					
Safety Pin					
Snap Fastener					
Hook Fastener					
Metal Cuff Link					
Metal Pin Jewelry					
Metal Finger Ring					
Metal Earring					
Glass Bead					
Suspender Buckle					
Shoe Leather Fragment					
Eyelet					
Fabric					
Dental Appliance					
Comb					
Coin					
Knife					
Other _____					

A=Skull **B**=Upper Right **C**=Upper Left **D**=Lower Right **E**=Lower Left

(Superior iliac crest separates upper half from lower).

APPENDIX D

TYPOLOGY AND ANALYSIS OF BURIAL CONTAINER HARDWARE FROM THE CAMPBELL'S BAYOU CEMETERY, GALVESTON COUNTY, TEXAS

by
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University of Texas at Austin

ABSTRACT

In June of 2014, Versar GMI contracted the author to provide analysis of the burial container hardware recovered from archaeological relocation of 34 historic burials within the Campbell's Bayou Cemetery in Galveston County, Texas. The cemetery is believed to have been in use by the residents of Campbell's Bayou including its namesake and earliest suggested interment, Captain James Campbell (d. 1856). The latest interments may have occurred as late as the first decade of the twentieth century. Excavation efforts recovered an array of mortuary artifacts, including one metallic casket, eight types of handles, four viewing windows, one caplifter and caplifter base, one style of coffin screw or coffin tack, at least eight types of thumbscrews, two types of escutcheons, three types of ornaments, two plaques, at least four types of ornamental tacks, one set of outer box handles, one style of outer box screws, one type of box corners, at least three types of internal fasteners and catches, corrugated fasteners, screws, tacks, and mostly cut nails. Through a descriptive analysis of the observed burial container hardware, these artifacts suggest that the relocated burials likely mostly date from the 1850s into the 1890s, with one interment dating as late as 1910.

METHODS

An analytical database was utilized to record the material, class, category, item, and type for each artifact item or item unit allowing for comparisons between individual burials. The terminology and semantics utilized in describing the coffin hardware was in part developed by James Davidson from *A Primer of Coffin Hardware* (1998). Other terms use the standard vernacular of historic artifact analysis.

Material type was identified as the basic constituent of the item, such as metal, glass, or composite, if more than one primary element was observed. Material type was further classified according to the specific variety utilized. For instance, metals were specified as an iron alloy, copper alloy, white metal, etc.

The class of the artifact refers to the context in which it was employed. Nails, handles, and such were classified as coffin hardware. This analysis focuses solely on burial container hardware.

Artifacts were further categorized as to their inferred function within the burial complex. For example, nails were differentiated from handles as being purely utilitarian in that they were utilized in the construction of the burial container, while handles were usually both utilitarian in that they were used to carry the container yet still decorative in that they ornamented the exterior of the box. Therefore, most handles were considered a functional decorative object.

Handles, nails, and so forth were identified as specific items or item units within a burial. An exception is illustrated by thumbscrews and escutcheons, which are usually employed together as a unit. However, thumbscrews can be utilized without the benefit of an escutcheon, therefore, they are considered as separate item units even when located together within the same burial.

Type refers to the particular attributes of an item or item unit. For instance, nails were typed by manufacturing technique (e.g. cut or wire), and handles were typed according to attachment style (e.g. double or single lug).

Other characteristics were recorded according to the necessities of each item, such as decoration, color, manufacturer's mark, etc. Temporal information was also assigned according to stylistic and utilization trends, patent dates, catalog matches, and so forth when available.

Non-quantifiable artifacts include the remains of wood in coffin or vault construction, paint, and textiles. These items were recorded as presence or absence, but otherwise excluded from detailed analysis. Specimens that were identifiable as fragments of a larger item were assigned the minimum number of items identified within the sample (n). For example, the singular pieces of a broken copper ornament were counted individually as specimens, and quantified as units as they were determined to be parts of a larger, distinct item.

In additional to an analytical database, a site specific coffin hardware typology was developed for decorative hardware and distinctive functional hardware. The numbering system utilized was maintained across burials and cross-dated with a collection of 96 contemporaneous coffin hardware, casket, coffin, burial container, undertaker, and funeral supply catalogs and pricelists.

ANALYTICAL RESULTS

A total of 1,404 artifactual specimens were recovered from the Campbell's Bayou Cemetery. Of these specimens, 735 individual items or item units were identified. Artifactual items that will be discussed in detail in this report include burial container hardware (n=734) and a metallic casket (n=1).

BURIAL CONTAINER HARDWARE

Burial container hardware is defined as items, permanently affixed to the coffin or casket, which are utilized both to construct the burial container as well as the elements used to secure and decorate it for transportation, viewing, and interment. At the Campbell's Bayou Cemetery, coffin hardware was broadly categorized as functional, functioning decorative, and purely decorative according to the perceived use within each burial complex. The following is a presentation of the results of each of these analytical categories.

Functional Hardware (n=590)

Functional hardware recovered from the Campbell's Bayou Cemetery includes items such as nails, screws, internally imbedded latches, tacks, and unidentified wood fasteners. A total of 590 functional items was identified from 1,229 individual specimens.

Nail (n=503)

Nails provide a broad chronological indicator for historic burials and can be classified into three general production methods: wrought, cut, and wire. Hand forging was the first production method for nails and produces a distinct nail shaft, which tapers on all sides. Wrought nails have been produced for thousands of years, but were succeeded by cut nail production in America beginning in the 1790s. However, it was not until around 1815 that technological advances

allowed cut nails to replace wrought nails in the construction industry. The manufacturing technique for cut nails can be further classified according to the directions from which the flat, iron sheet-blanks were cut. Cutting from opposite sides of the iron blank has occurred since about 1810, while cutting from the same side has occurred since about 1830. Although cut nails are still manufactured today as a specialty item, wire nails began supplanting cut nails in 1885 with the development of Bessemer steel which allowed for a cheaper and more durable wire nail (Edwards and Wells 1993).

In the urban, coffin industry of Texas it has been suggested that cut nails were still used sporadically until around 1905 (Davidson 1998:21). At the Freedman's Cemetery in Dallas, Texas, wire nails did not replace cut nails in coffin construction until around 1895 or 1900 due in part to economic necessity (Davidson 1998:158). Furthermore, Nelson states that although wire nail production had been established on the east coast of America and even earlier in Europe, wire nails did not come into common usage until the 1890s (1968). Edward and Wells project an even later date of circa 1900 concerning the predominance of wire nails within an architectural context in Louisiana. It could be suggested that due to the rural character of the community of Campbell's Bayou that the introduction of wire nails may be even later. However, the community's proximity to the major shipping port of Galveston may have allowed an earlier introduction date. Therefore, cut nails of indeterminate sides at the Campbell's Bayou Cemetery were assigned a summary date of 1815 to circa 1905, and wire nails were assigned a summary date of 1885 to present.

Nails from the Campbell's Bayou Cemetery were classified according to production method, size, and treatment. From the 1,123 nail specimens, 503 individual nails were identified according to the minimum number of heads present. The majority of individual nails recovered were cut (n=411), possibly cut (n=28), and possibly wire (n=45), while the remaining could not be identified (n=19). Due to overwhelming poor preservation of the nail shafts, no burials contained nails of identifiable sides.

The size of the nail was measured for complete specimens only (n=97). The United States penny size system was utilized wherein penny is abbreviated with a "d" and an increasing number indicates a longer nail. Penny sizes at the cemetery ranged from 4d (n=2), 5d (n=7), 6d (n=13), 7d (n=34), 9d (n=34), and 16d (n=7).

At the Campbell's Bayou Cemetery, treatment of nails consisted of clinching only. Clinching is identified by the bent shaft of a nail whose angle is usually uniformly identified with other specimens from the same burial. The bending of the shaft prevents the nail from becoming dislodged and loosening. Clinching is usually performed on wire nails rather than cut nails, however, at the Campbell's Bayou Cemetery four cut nails were clinched whereas one indeterminate shaft nail exhibited evidence of clinching. A total of 13 clinched nail shafts from fragments of cut nails were also observed.

One other possible nail was observed from Burial 22. The indeterminate shaft measured approximately six inches in length, which is equivalent to a 60d nail. Additionally, four specimens of ferrous alloy fragments were identified as possible nail or screw shafts. No complete specimens were present.

Screw (n=4)

A total of seven iron screws and screw fragments were recovered from within three burials at the Campbell's Bayou Cemetery. Of this number, three are likely associated with other fragmented hardware elements such as handles, coffin screws, or thumbscrews. The other four items represent screws with intact heads from within burials (8, 11, 12). The remaining screws were identified by the presence of a gimlet shaft only. Ten additional ferrous alloy shaft fragments were observed that could be possible screws; however, preservation was such that a definitive identification could not be made.

Corrugated Fasteners (n=1)

A single corrugated fastener was observed at the Campbell's Bayou Cemetery (Burial 17). Corrugated fasteners are thin strips of ferrous metal exhibiting a grooved surface along the lateral edge, which were driven between two pieces of wood to connect them along a joint. The first patent for such fasteners was issued in 1884 to an Albert H. Walker of Brooklyn, New York (U.S. Utility Patent No. 300536). However, it was not until the 1890s that a proliferation of patents based on improvements in corrugated fasteners and a means of more easily securing the fasteners occurred (see U.S. Utility Patents 366269, 406545, 419973, 427632, 428701). Recovery of corrugated fasteners in at least nine other historic cemeteries in Texas, and other states, such as Alabama, Kentucky, Arkansas, and West Virginia, provides a summary date of 1896 until around 1956, for use within burial contexts (Pye 2011:45).

Internally Embedded Latches and Fasteners (n=15)

A total of 17 internally embedded latches and fastener fragments were recovered from five graves at the Campbell's Bayou Cemetery (Burial 3, 5, 11, 26, 33). A total of 10 specimens consisting of at least eight Type 1 Internal Fasteners (Freedman's Type 1 Iron Closures of the looped wire variety) were identified. Davidson classified this type of fastener at the Freedman's Cemetery in Dallas as consisting of an iron screw with a wire looped around the top of the head terminating in a projecting, pointed tip. This type of specimens consisting of at least eight Type 1 Internal Fasteners (Freedman's Type 1 Iron Closures of the looped wire variety) were identified. Davidson classified this type of fastener at the Freedman's Cemetery in Dallas as consisting of an iron screw with a wire looped around the top of the head terminating in a projecting, pointed tip (Figure D-1). This type of iron closure was hypothesized to secure the internal corners of the burial container (1998:18). Davidson suggests this type of internally embedded fastener was utilized in coffin construction after 1890; however, patent information suggests that it may have been introduced as early as 1881 for general wooden box corner construction (U.S. Utility Patent 237806). At the Adams Cemetery in Robertson County, Texas, Iron Closure Type 1 was also employed in a single burial dating to 1888 as indicated by an inscribed headstone (Anderson et al 2011: 107). Therefore, a terminus post quem of 1881 is assigned to Freedman's Type I Iron Closures for the Campbell's Bayou Cemetery due to their possible availability, although it is likely that 1888 serves as a more feasible introduction date.

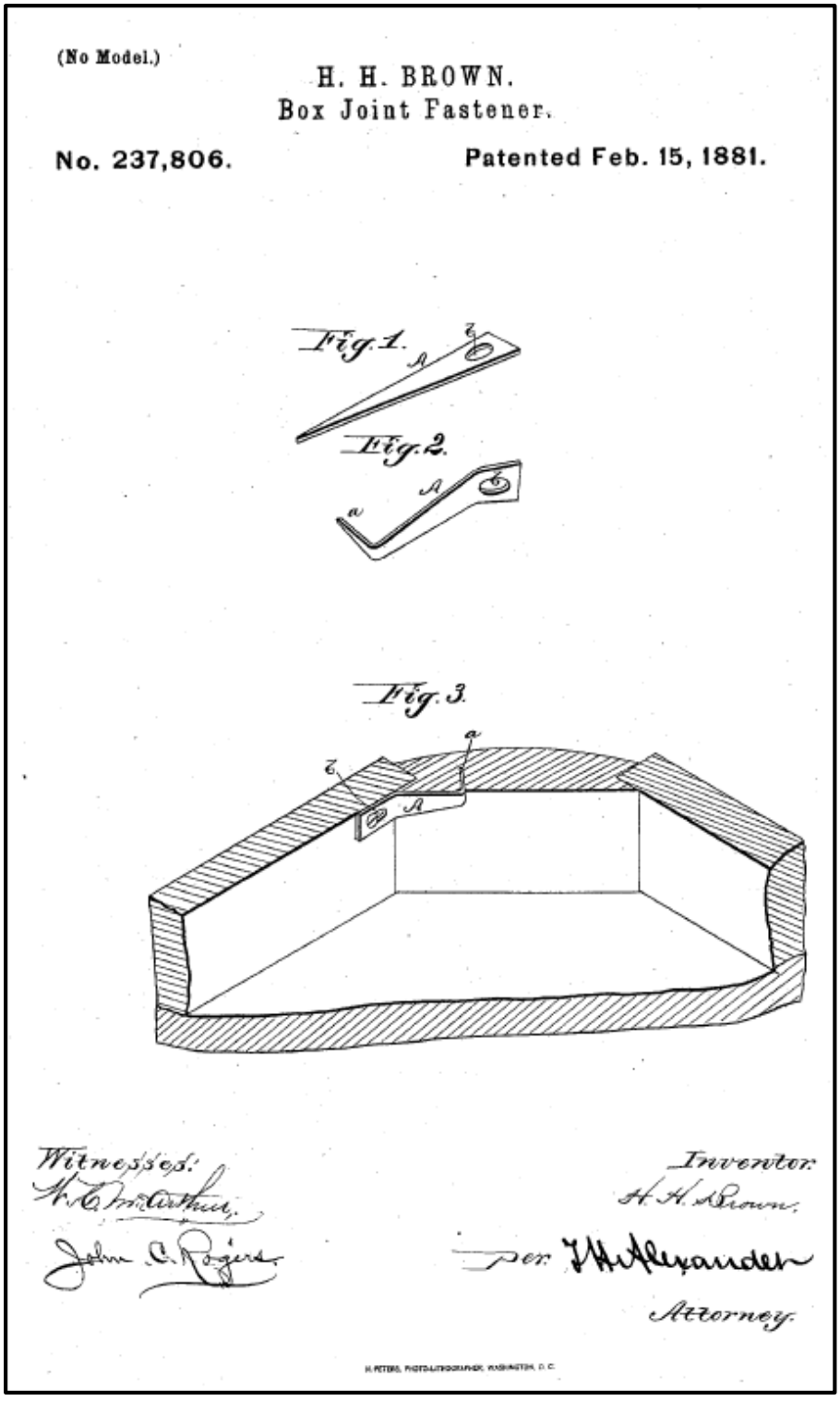

Figure D-1. U.S. Utility Patent 237,806 for a Box Joint Fastener.

A second variety of internally embedded latches observed at the cemetery include top fasteners (n=7) from Burials 5 and 26. Top fasteners are a complex coffin lid closure mechanism involving corresponding hooks, springs, and adjoining base plates (Figure D-2). Generally speaking a complete set of top fasteners would include two head body plates to receive two spring-loaded latches operated by thumb levers, and two foot body plates to receive similarly shaped latches. As the names imply, the head and foot body plates were mounted along the top of the sideboards of the casket near the head and foot, respectively.

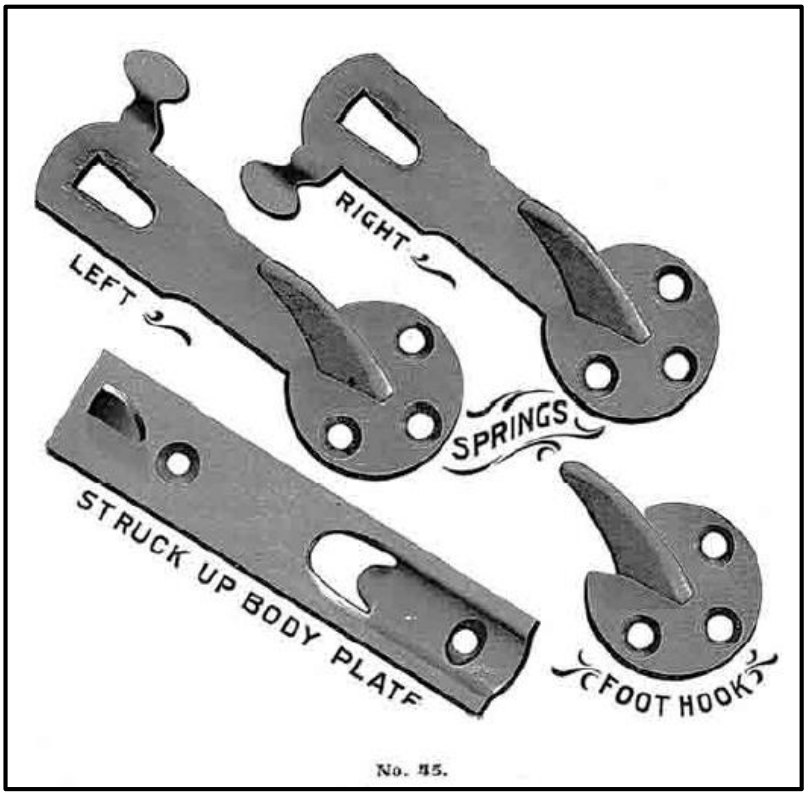

Figure D-2. Top Fasteners from page 77 of the 1920s-1930s Langenau Manufacturing Company catalog.

The earliest patents located in the U.S. Patent Office for complex latching top fasteners for burial containers occur in the late 1880s (see U.S. Utility Patents 377325, 383235, and 401663). Improvements upon these mechanisms were made at least into the 1960s by the Langenau Manufacturing Company (U.S. Utility Patent 3048435). Therefore a summary date of circa 1890 to circa 1960 is assigned to top fasteners.

Top fasteners recovered at the Campbell's Bayou Cemetery include a round, foot hook with corresponding square, body plate from Burial 5, and an unidentifiable head spring and body plate from Burial 26. An additional five more indeterminate type top fasteners and top fastener fragments were observed from Burial 5.

Tack (n=45)

At the Campbell's Bayou Cemetery, 47 plain, iron alloy tack specimens consisting of 45 complete tacks were recovered from 11 individual burials (1, 2, 3, 6, 7, 16, 19, 24 25, 33, 34). Tacks are not considered highly temporally diagnostic and were, therefore, not assigned a summary date range; however, they provide excellent indicators as to the presence of a fabric lining in a burial container. Tacks found in larger quantities from a single grave imply that the coffin was lined with fabric and the tacks secured its placement (Davidson 1998:20). Relatively few tacks found in conjunction with ornaments, ornamental tacks or coffin tacks suggest that they were utilized to secure the ornamentation. At the Campbell's Bayou Cemetery, no burials contained relatively large quantities of tacks. However, the lack of other hardware utilizing tacks conclusively suggests fabric lining was present in some burials (Burials 1, 6, 24, 33). Five burials contained tacks which could have been utilized in other hardware or lining (Burial 2, 7, 19, 25, 34). The tacks from a single burial were attributed to other ornamentation and were likely not lined (Burial 16), while Burial 2 contained few tacks due to the profusion of other decorations, it is likely this burial container was also lined. Tacks with ornamental heads will be discussed in the following section.

Outer Box Hardware (n=15)

Outer box hardware is a type of burial container hardware produced with the intention of use on a secondary box, likely used to protect the coffin or casket proper during shipping. The inclusion of an outer box within a grave would provide a means of disposal, as well as another protective layer for the deceased. Outer box hardware observed at the Campbell's Bayou Cemetery includes box corners (n=4), outer box handles (n=4), and outer box screws (n=7) from seven individual burials (7, 10, 11, 14, 15, 17, 19). Burial 7 included exclusively outer box handles of the single lug swingbail variety and Burial 10 contained four three-pronged box corners. The remaining burials contained between one to two outerbox screws consisting of a flat, ferrous alloy ovoid attached to a gimlet shaft. The presence of an outerbox is likely within Burials 7, 10, 11, 14, 15, and 17, due to a duplication of other interior hardware, such as handles or thumbscrews. However, Burial 19 contained only box screws and no corresponding thumbscrews, therefore either box screws were utilized as a means of burial case closure or another form of closure, such as nails were utilized on the interior coffin and box screws indeed graced an outer box.

Functioning Decorative Hardware (n=86)

Functioning decorative hardware is considered ornamental but also served a utilitarian purpose. Such hardware recovered from the Campbell's Bayou Cemetery includes caplifters and caplifter bases, coffin, thumbscrews and escutcheons, handles, and a metallic casket. A total of 108 specimens consisting of 86 items were identified from 12 individual graves. Functioning decorative hardware types are discussed further below.

Caplifter and Caplifter Base (n=2)

A caplifter and associated base are related to the wooden cover placed over a viewing window (Figure D-3). Cast of white metal in a decorative form, caplifters function as a knob or handle to remove and replace the viewing window cover. Although caplifters were utilized in conjunction with viewing windows until the latter fell out of favor in the 1920s, they were more commonly employed in the 1870s and 1880s (Davidson 2004: 396). A single caplifter and base were recovered from Burial 3 at the Campbell's Bayou Cemetery consisting of a three-dimensional daisy with embossed petals. The corresponding base is stylistically matched, depicting a bouquet of flowers. A summary date of 1880 to 1920 was supplied for the single caplifter due to seven catalog matches.

Figure D-3. Caplifter from Burial 3.

Thumbscrew and Escutcheon (n=49)

Thumbscrews are a type of decorative coffin lid closure represented at the Campbell's Bayou Cemetery. They were both technologically easier to use as a means of lid closure than earlier coffin screws, and ornamentally more variable. Thumbscrews only required a thumb and forefinger to secure the lid of a coffin. Available in such motifs as a draped pillar, "At Rest," a pulled curtain, or a funerary urn, thumbscrews had a wide variety of stylistic appeals (Figure D-4). A total of eight unique styles were identified at the cemetery. Thumbscrews are frequently used in association with a stylistically matched escutcheon in order to protect the underlying wood, therefore, a thumbscrew and escutcheon are considered corresponding items when observed within the same burial complex (Davidson 1999:8). Thumbscrews were first in the early 1870s as a means of lid closure, which require only manual dexterity as opposed to coffin screws, which require tools such as a screwdriver (see U.S. Utility Patent 7797). Their design quickly evolved from three-dimensional urn shapes, to flat-bodied urns, and other highly stylized funerary motifs and designs (ibid). As thumbscrews replaced coffin screws, they became the normative form of lid closure until they declined in popularity in the first two decades of the twentieth century.

Thumbscrews (n=45) and escutcheons (n=4) were recovered from 11 burials at the Campbell's Bayou Cemetery (Burials 3, 7, 8, 10, 11, 12, 14, 15, 16, 17, 20, 26). While escutcheons always occur alongside thumbscrews, thumbscrews were employed exclusively in nine burials. The disparate quantitative difference in escutcheons may be attributed to relative poor preservation of sheet copper escutcheons possibly utilized at the cemetery, which may have been recovered in lower proportions to their white metal counterparts.

Figure D-4. Thumbscrews from B. 7 (Type 8 – stylized, flat-bodied urn).

In general, thumbscrews and escutcheons were in use as late as the 1920s, and as early as their introduction in 1874 (Davidson 1998: 26). At the Campbell's Bayou Cemetery, five thumbscrew types were matched to contemporary coffin hardware catalogs, ranging in dates from 1877 to 1905 (Table D-1). However, dated interments from two other Texas cemeteries suggest that thumbscrews were likely a preferential means of closure after around 1883 (Basse 2013: 44). Therefore, a summary date range of 1883 to 1905 was assigned to thumbscrews and escutcheons.

Table D-1
Thumbscrew Types Dated According to Catalog Matches

Thumbscrew #1	n/a
Thumbscrew #2	1905
Thumbscrew #3	n/a
Thumbscrew #4	1880
Thumbscrew #5	1877 to 1905
Thumbscrew #6	n/a
Thumbscrew #7	1880 to 1905
Thumbscrew #8	1901 to 1905
Thumbscrew #9	circa 1905
Thumbscrew Indeterminate	n/a

Handles (n=42)

Handles were recovered from ten graves at the Campbell's Bayou Cemetery (Burials 3, 7, 8, 10, 11, 14, 15, 17, 22, 24, 26). A single instance of an aesthetically decorative handle will be discussed in the following section. Historically, handles were usually decoratively cast from white metal and attached to the coffin or casket via iron screws so that the container could be carried more readily. Eight styles were observed within the collection. The predominant type consisted of double lug swingbails (n=28). A single set of four handles from Burial 7 were of the double lug swingbail variation with tips attached to the bails made to look like a more expensive short bar style (Handle Type 6). In addition, a single set of diminutive, single lug swingbail handles were observed within Burial 3 (Figure D-5). Swingbail handles were in use on burial

Figure D-5. Diminutive Handle from Burial 3 (Type 1).

containers prior to the nineteenth century, but became gradually less popular with the introduction of the more complex, bar-type handles in the late 1860s and early 1870s (Table D-2). By around 1890 bar-type handles were more common than bails, and replaced them sometime after 1900 (Davidson 1998: 13).

Table D-2
Handle Types Dated According to Catalog Matches

Handle #1	1871 to 1934
Handle #2	1865 to 1920
Handle #3	1893 to 1905
Handle #4	1875 to 1895
Handle #5	1880 to 1901
Handle #6	1895
Handle #7	1875 to 1880
Handle #8	1895 to 1905
Handle #9	circa 1896

Burial 22 contained the only occurrence of double lug short bar handles (n=6). This style consists of an attached arm and tip decorated with a geometric and floral embossed pattern (Figure D-6, Type 7). Due to their more complex construction, bar handles were more expensive than their bail counterparts; however, bar handles remain popular into the twenty first century, while swingbails declined into the first three decades of the twentieth century (Davidson 1998:11).

Figure D-6. Handle Type 7 from Burial 22.

Decorative Hardware (n=57)

Decorative hardware consists of purely ornamental coffin embellishments, which do not serve any utilitarian purpose within a burial complex. Examples of decorative hardware categorized at the Campbell's Bayou Cemetery include imitation handles (n=1), ornamental tacks (n=45), ornaments (n=3), possible ornament or plaque (n=1), plaques (n=3), and viewing windows (n=4). Each decorative artifact type will be discussed further below.

Handle (n=2)

Two graves at Campbell's Bayou Cemetery contained handles, which were purely ornamental in appeal (Handle Type #8 and #9). Burial 24 showed evidence of a single copper alloy ornament stamped to appear as a diminutive, single lug swingbail handle (Figure D-7). The design motif includes the text "Our Darling" and a reclining lamb, commonly located with children's burials. This design is strikingly similar to that of Burial 3 (cf. Figure D-5). A second imitation handle of similar design was present in burial 15.

Figure D-7. Right: Diminutive Imitation Handle from the 1900 Louis J. Lamb catalog (pg. 22). Left: Burial 24 (Type 8).

Ornamental Tacks (n=45)

Ornamental tacks consist of a small, stamped copper alloy sheeting attached to the coffin with a ferrous alloy tack. They are purely decorative in manner and designs most commonly consist of finely embossed diamonds, floral motifs, and starbursts. They differ from other coffin embellishment, such as ornaments and plaques, in that they are relatively small, without text, and were usually employed to decorate the edges of the coffin lid and sides in a greater multitude. At the Campbell's Bayou Cemetery, ornamental tacks were not well preserved and severely degraded. As many as 46 and as few as 45 ornamental tacks were identified from a total of 47 possible fragments within 14 burials (2, 3, 7, 11, 12, 14, 15, 16, 17, 18, 19, 21, 21, 34). A minimum number was established from the number of preserved tack centers. Identifiable styles included two diamonds, one starburst, and one imitation coffin screw design (Figure D-8). Ornamental tacks were in wide use from circa 1850 to 1910 (Davidson 1998:22) (Table D-3).

Ornaments (n=3)

Ornaments are similar to ornamental tacks in that they are both made from stamped copper sheeting (or lead-based white metal) and attached to the coffin via iron tacks. Ornaments differ in that they are relatively large, which generally entails a much more elaborate design. Styles recovered at the Campbell's Bayou Cemetery were floral, figural, and abstract. Ornaments were distinguished from plaques by the lack of an epigraph. A total of three ornaments were identifiable within two graves at the Campbell's Bayou Cemetery (Table D-4), and assigned the same temporal range as ornamental tacks (Burials 3, 8).

Figure D-8. Diminutive Ornamental Tack from Burial 3 (Type 1).

Table D-3
Ornamental Tack Types Dated According to Catalog Matches

Ornamental Tack #1	Circa 1880
Ornamental Tack #2	1874
Ornamental Tack #3	1877 to 1905
Ornamental Tack #4	1871 to 1905
Ornamental Tack Indeterminate	n/a

Table D-4
Ornament Types Dated According to Catalog Matches

Ornament #1	1874 to 1901
Ornament #2	1880 to 1905
Ornament #3	1880 to 1905

Indistinguishable Ornaments and Plaques (n=1)

An additional copper element could not be positively attributed to an ornamental tack nor plaque from Burial 14. This burial carried a mixture of ornamental tacks; however the fragment was considered too large to belong to the latter category, and may represent either an ornament or plaque.

Plaques (n=3)

Plaques are another form of decoration commonly found in late nineteenth century burials composed of either stamped copper alloy or cast white metal (Figure D-9). They vary in shape from rectangular to oval, and usually bear a personalized inscription or a standardized message, such as "At Rest" or "Mother". At the Campbell's Bayou Cemetery, three plaques were recovered in rectangular and banner-like motifs, reading the common inscriptions of "Our Babe,"

Figure D-9. Diminutive plaque recovered from Burial 3 (Type 1) reading "Our Babe".

"Rest in Peace," and "Our Darling," respectively (Burials 3, 7, 11). While Plaque Type #1 was matched to catalogs from the years 1879 to 1893; however, no matches were located for Plaque Type #2. Plaque Type #3 matched three hardware catalogues from 1885, 1896 and 1900-1930.

Viewing Window (n=4)

A viewing window is a plate of glass placed within the lid of the coffin in order to facilitate "viewing" of the deceased. Viewing windows could be either static or sliding, and were usually structurally incorporated into the lid itself. In either case, a wooden cover was likely employed to shroud the deceased for burial. The cover offered further protection from the elements, as well as shielding the mourners from the act of covering their loved one with earth. The covers often exhibit elaborately designed caplifters and caplifter bases to aid in removing and replacing the viewing window cover. Viewing windows grew in popularity from the 1850s until the early to mid 1900s when they fell out of favor, which may correspond with attitudes towards displaying the dead (Bell 1990:58).

A total of four viewing windows were recovered from the Campbell's Bayou Cemetery (Burials 3, 7, 11, 22). The diminutive viewing window from Burial 3 was static or held in one position rather than sliding or pivoting due to the lack of a small, drilled hole at one end. The glass pane is roughly rectangular with rounded corners and expands towards one longitudinal end. Burial 7 contained an elongated oval-shaped window, which was likely static due to the possible presence of white caulking along the eastern edge. Burial 11 also contained an elongated oval-shaped window with a relatively more dramatic taper towards the head. Burial 22 contained a viewing window of indeterminate shape; furthermore, both Burial 11 and 22 exhibited no suggestive evidence of mobility. Bell suggests that the more angular viewing windows may be later; therefore a summary date range of 1850 to 1920 was supplied (Bell 1990:58).

Indeterminate Use Hardware (n=3)

Due to poor preservation of some metallic elements at the Campbell's Bayou Cemetery, a total of three items could not be distinguished as either coffin screws or coffin tacks (Burial 4). Coffin screws are an early means of lid closure exhibiting a slotted white metal head molded into a dome often enhanced with finely embossed crosshatched lines. Coffin tacks are similar to coffin screws, but differ in that they have a tack shaft rather than a threaded, gimlet shaft. Coffin tacks are made to serve the same decorative appearance of coffin screws, but would have functioned merely as ornament due to their lack of screw shafts. In this manner, coffin tacks would be considered purely decorative, and assigned the same popularity date range of coffin screws from 1840 to 1900 (Davidson 1999:7).

The iron shaft of these items had degraded to the point wherein a tack or screw shaft could not be identified. Coffin screws and coffin tacks presumably would have served differing uses within a burial complex, and are therefore considered to be of indeterminate function. The same date ranges apply for these items as the above coffin screws and coffin tacks.

Metallic Casket (n=1)

A single metallic burial container was recovered from the Campbell's Bayou Cemetery. Burial 22 contained an adult-sized metallic casket composed of cast and rolled iron alloy steel (Figure D-10). Although casket and coffin have previously been used interchangeably, a coffin generally refers to a hexagonal box and a casket to a parallel- sided container, or rectangular box. In the instance of Burial 22, the container was elliptical with a slight tapering towards the feet. The top and bottom of the container were sealed with flanges running along all sides of the coffin, which were likely sealed with a composition cement. Additionally, a profusion of white metal thumbscrews and escutcheons encircled the casket along the flange. The lid of the burial container was heavily damaged, likely due to compression; however a slight beveling akin to head and foot panels was still visible. A set of six double lug short bar handles adorned the exterior (see Figure D-6, Handle Type 7).

Although an exact catalog match could not be located for the metallic burial container, the design is similar to patented models from the early 1860s, such as the Crane, Breed, and Company style (Habenstein and Lamers 1955: 271). However, later styles were to become increasingly rectangular, or casket-shaped; therefore it is likely that this metallic burial container dates as early as the 1860s, but more likely the 1870s or 1880s (Crow 2004: 123).

Figure D-10. Metallic Burial Case from Burial 22.

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APPENDIX E

COFFIN HARDWARE TYPOGICAL CATALOG

Photo: DSCF1129
Viewing Window Type #1
Diminutive
Burial 3

Photo: DSCF1157
Ornamental Tack #1
Burial 3

Catalog Match:
Similar to No. 26 from circa 1880 C. Sidney Norris and Company
Similar to No. 8 1871 Taylor & Co.

Catalog Date Range: 1880

Photo: DSCF1515
Ornamental Tack Type #2
Burial 14

Catalog Match:
Similar to No. 65 from 1874 Wayne Hardware Co.

Catalog Date Range: circa 1874

Photo: IMG6581
Ornamental Tack Type #3
Burial 3

Catalog Match:
Identical to No. 120 from 1877 Crane, Breed, and Company
Identical to No. 9 from 1880 Stolts and Russell Company
Identical to No. 22 from 1880 Warfield and Rohr's Company
Identical to No. 103 from 1895 Kregel Casket Company

Catalog Date Range: 1877 to 1895

Photo: 1905 Chattanooga pg. 162
Ornamental Tack Type #4
Burial 4

Catalog Match:
Equivalent to No. 64 from 1871 and 1874 Sargent and Company
Identical to No. 52 from 1874 Wayne Bros. Hardware
Identical to No. 152 from 1877 Crane, Breed, and Co.
Similar to No. 52 from circa 1880 C. Sidney Norris and Co.
Identical to No. 52 from 1905 Chattanooga Casket Co.

Catalog Date Range: 1871 to 1905

Photo: DSCF1644 (reversed)
Ornament Type #1
Burial 8

Catalog Match:
Similar to No. 40/41 from 1874 Sargent and Company
Similar to No. 412/413 from 1874 Wayne Bros. Hardware
Similar to "Hand and Rose" from 1877 Crane, Breed, and Co.
Similar to No. 3 from 1879 Cincinnati Coffin Company
Similar to No. 41 from circa 1880 C. Sidney Norris and Company
Similar to No. 14 from 1880 Stolts, Russell, and Company
Similar to No. 2 from 1880 Warfield and Rohr's Company
Similar to No. 21/23 from 1880 Zanesville Coffin Company
Similar to "Hand and Rose" from 1881 Paxson, Comfort and Company
Similar to No. 2 from 1883 Cincinnati Coffin Company
Similar to No. Similar to No. 39 from 1901 St. Louis Coffin Company

Catalog Date Range: 1874 to 1901

Photo: IMG302
Plaque Type #1
Burial 7
"Rest in Peace"

Catalog Match:
Identical to No. 4 from 1879 Cincinnati Coffin Company
Identical to No. 104 from 1880 Warfield and Rohr's Company
Identical to No. ¼ from 1881 Cincinnati Coffin Company
Identical to No. 1 from 1881 Paxson, Comfort and Company
Identical to No. ¼ from 1893 F.C. Riddle and Company

Catalog Date Range: 1879 to 1893

Photo: IMG6585
Plaque Type #2
Diminutive
"Our Babe"
Burial 3

Catalog Match: none

Catalog Date Range: none

Photo: DSCF 2002
Plaque Type #3
"Our Darling"
Burial 11

Catalog Match:
Identical to No. 117 from 1896 Chicago Coffin Co.
Identical to Set No. 65 from Catalogue H-6 1900-1930 Hearne Bros. & Co.
Identical to No. 101 from Catalogue H-6 1900-1930 Hearne Bros. & Co.

Catalog Date Range: circa 1896

Photo: DSCF1162
Thumbscrew Type #1
Burial 3

Catalog Match: none
Identical to thumbscrew "R" from the A.L. Calhoun, Jr. Store collection

Catalog Date Range: none

Photo: DSCF1172
Thumbscrew Type #2
Burial 15, 17

Catalog Match:
Equivalent to No. 61 from 1905 Chattanooga Casket Company

Catalog Date Range: circa 1905

Photo: DSCF1495
Thumbscrew Type #3
Burial 26

Catalog Match: none

Catalog Date Range: none

Photo: IMG6579
Thumbscrew Type #4
Burial 3, 8, 14, 16

Catalog Match:
Equivalent to No. 17 from 1880 Warfield and Rohr's
No exact match or patented form
Identical to Burial 16 1870-1910 Pioneer Cemetery, Brazoria County, TX Pye 2011
Identical to Thumbscrew Type 1 from Eddy Cemetery, AR 1870-1900 Mainfort and Davidson 2006

Catalog Date Range: 1870-1910

Photo: DSCF1725
Thumbscrew Type #5
Burial 12

Catalog Match:
Identical to Thumbscrew 63 from the Freedman's Cemetery, Middle Period
Identical to No. 51 from 1877 Crane, Breed and Co.

Catalog Date Range: 1877-1900

Photo: DSCF1801
Thumbscrew Type #6
Burial 10

Catalog Match: none

Catalog Date Range: none

Photo: DSCF2013
Thumbscrew Type #7
Burial 11

Catalog Match:
Identical to No. 26 from 1880 Zanesville Coffin Company
Identical to No. 13S from 1880 Warfield and Rohr's
Identical to No. 341/343 from c. 1885 Harrisburg Burial Case Company
Identical to No. 343 from 1905 Chattanooga Coffin and Casket Co. Catalogue

Catalog Date Range: 1880 to 1905

Photo: IMG322
Thumbscrew Type #8
Burial 7

Catalog Match:
Similar to No. 9 from 1901 St. Louis Coffin Company
Similar to No. 73 from 1901 Gate City Coffin Company
Similar to No. 73 from 1905 Chattanooga Coffin and Casket Co. Catalogue
Identical to thumbscrew "S" from the A.L. Calhoun, Jr. Store collection

Catalog Date Range: 1901 to 1905

Photo: DSCF2042
Thumbscrew Type #9
Burial 16

Catalog Match:
Identical to No. 713 from 1905 Chattanooga Coffin and Casket Co Catalogue

Catalog Date Range: circa 1905

Photo: DSCF2012
Escutcheon Type #1
Burial 11

Catalog Match:
Similar to No. 6 from 1879 and 1881 Cincinnati Coffin Company Catalog
Similar to No. 6 from 1880 Warfield and Rohr's

Catalog Date Range: 1879 to 1881

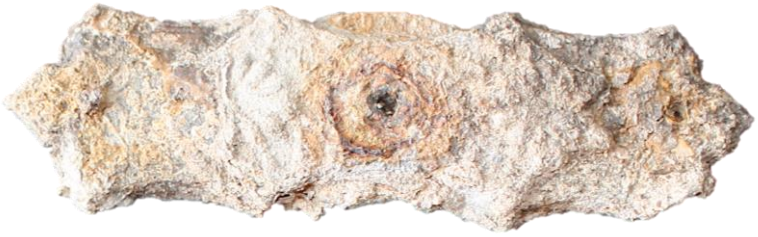

Photo: IMG6578
Escutcheon Type #2
Burial 3

Catalog Match: none
Identical to Escutcheon Type B 1870-1910 Pioneer Cemetery, Brazoria County, TX Pye 2011
Identical to Escutcheon Type 1 from Eddy Cemetery, AR 1870-1900 Mainfort and Davidson 2006

Catalog Date Range: dates 1870-1906

Photo:
Escutcheon Type #3
From Burial 16

Catalog Match:
Identical to No. 713 from 1905 Chattanooga Coffin and Casket Co Catalogue

Catalog Date Range: circa 1905

Photo: IMG338
Coffin Screw/Tack Type #1
Burial 4

Catalog Match:
Similar to No. 18 from 1865 Russell and Erwin Company
Similar to No. 36 from 1871 and 1874 Sargent and Company
Similar to No. 36 from 1874 Wayne Hardware Company
Similar to No. 15/25 from 1875 H.E. Taylor and Company
Similar to No. 34/36 from 1875 Miller Brothers Company
Similar to No. 84/86 from 1877 Crane, Breed, and Company
Similar to No. 3 from 1879 Cincinnati Coffin Company
Similar to No. 34/36 from circa 1880 C. Sidney Norris and Company
Similar to No. 36 from 1880 Warfield and Rohr's Company
Similar to No. 18 from 1881 Paxson, Comfort, and Company

Catalog Date Range: 1865 to 1881

Photo: DSCF1194

Outer Box Screw Type #1
Burials 11, 14, 15, 17

Catalog Match:
Identical to No. 10R from 1880 Warfield and Rohr's Company
Identical to No. 10 from 1881 Paxson, Comfort and Company

Catalog Date Range: 1880 to 1881

Photo: DSCF1813
Outer Box Corner Brace Type #1
Burial 10

Catalog Match:
Equivalent to No. 33 from 1905 Chattanooga Casket Company

Catalog Date Range: circa 1905

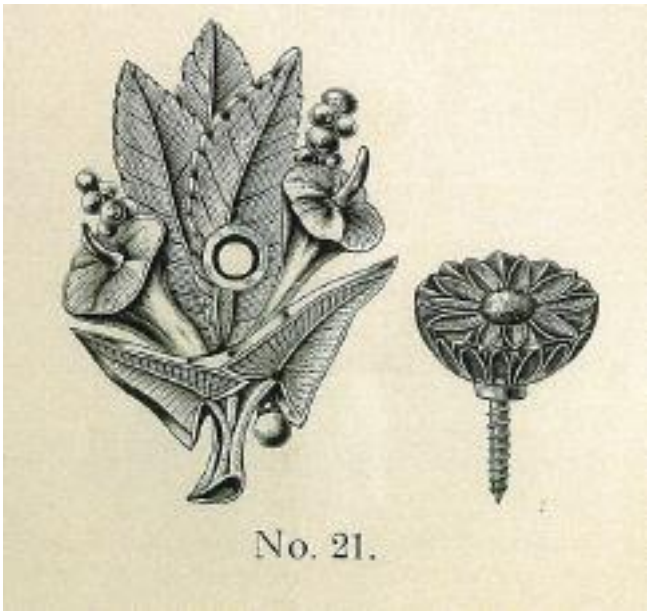

Photo: No. 21 from 1901 Gate City Coffin Company
Caplifter and Caplifter Base Type #1
Burial 3

Catalog Match:
Identical to No. 3 from 1880 Zanesville Casket Company
Identical to No. 21 from 1880 Stolts, Russell
Identical to No. 6 from 1880 Warfield & Rohr
Identical to No. 6 from 1881 Cincinnati Coffin Company
Identical to No. 21 from 1901 Gate City Coffin Company
Identical to pg. 1191 from 1904 C.M. McClung and Company
Identical to No. 20 from 1905 Chattanooga Casket Company
Identical to No. 21 from 1920 Sargent

Catalog Date Range: 1880 to 1920

APPENDIX F

HANDLE TYPE CATALOG

Photo: DSCF1133
Handle Type #1
Burial 3

Catalog Match:
Identical to No. 35 in 1875 Miller Brothers and Company
Identical to No. 1 from 1875 H.E. Taylor and Company
Identical to No. 50 from circa 1880 C. Sidney Norris and Company

Catalog Date Range: 1875-1880

Photo: DSCF1805
Handle Type #2
Burial 10, 26

Catalog Match:
Identical to No. 121 from 1880 Stolts, Russell Catalog
Identical to No. 26 from 1880 Zanesville Coffin Company
Identical to No. 1210 from 1881 Paxson, Comfort and Company
Identical to No. 4066 from circa 1920 Sargent & Company (APV: F-153)

Catalog Date Range: 1880-1920

Photo: DSCF1521
Handle Type #3
Burial 8, 14

Catalog Match:
Identical to No. 1215 from 1901 Gate City Coffin Company
Identical to No. 543/643 from 1905 Chattanooga Coffin and Casket Company

Catalog Date Range: 1893 to 1905

Comments: Similar to No. 1 from APV Catalog (dated to ca. 1905 from associated hardware types)

Photo: DSCF1983
Handle Type #4
Burial 11

Catalog Match:
Similar to No. 58/95 from 1875 H.E. Taylor and Co.
Similar to No. 162/100 from 1877 Crane, Breed, and Co.
Similar to No. 109 from 1880 Warfield and Rohr's
Similar to No. 109 from 1881 Cincinnati Coffin Co.
Similar to No. 100 from 1881 Paxson, Comfort and Co.
Similar to No. 306 from 1895 Kregel Casket Co.

Catalog Date Range: 1875 to 1895

Photo: IMG6563
Handle Type #5
Burial 17

Catalog Match:
Equivalent to No. 46 M from 1880 Warfield and Rohr's Co.
Similar to No. 3055 from 1901 Gate City Coffin Co.

Catalog Date Range: 1880 to 1901

Comments: identical to No. 26 from APV Report (dated to ca. 1905 by associated hardware types)

Photo: IMG310
Handle Type #6
Burial 7

Catalog Match:
Identical to No. 328 from 1895 Kregel Casket Co.

Catalog Date Range: 1895

Photo: IMG346 & IMG347
Handle Type #7
Burial 22

Catalog Match:
Equivalent to No. 98 from 1875 H.E. Taylor and Co.
Equivalent to No. 408 from 1875 Miller Bros. Co.
Similar to No. 463 from 1880 Stolts, Russell and Co.
Similar to No. 871B from 1880 Warfield and Rohr's Co.

Catalog Date Range: 1875 to 1880

Photo: DSCF1205
Imitation Handle Type #8
Burial 24

Catalog Match:
Identical to No. 55 from 1895 Kregel Casket Company
Identical to No. 172 from 1900 Louis J. Lamb
Identical to No. 195 from 1901 Gate City Coffin Co.
Identical to No. 701 from 1901 St. Louis Coffin Company
Identical to No. 105 from 1905 Chattanooga Casket Co.

Catalog Date Range: 1895 to 1905

Photo: DSCF1205
Imitation Handle Type #9
Burial 15

Catalog Match:
Identical to No. 195 from 1896 Chicago Coffin Company

Catalog date range: circa 1896

Photo: IMG306
Outer Box Handle Type #1
Burial 7

Catalog Match:
Identical to No. 1 from 1896 Chicago Coffin Company
Identical to No. 211 from 1901 St. Louis Coffin Company
Identical to No. 211/212 from 1905 Chattanooga Casket Company

Catalog Date Range: 1901 to 1905

APPENDIX G

BURIAL HARDWARE SUMMARIES

Coffin Hardware by Individual Burial	Summary Dates (Estimated Interment Date in Bold)
Burial 1	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Tack	
Burial 2	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack, Indeterminate	circa 1850 to circa 1910
Tack	
Burial 3	**1881 to 1905**
Caplifter #1 and Caplifter Base #2	1880-1885
Escutcheon #2	1870-1900
Handle #1	1871 to 1934
Internal Fastener #1 (Freedman's Type 1)	post 1881 (likely 1888)
Nail, Cut	terminus ante quem circa 1905
Nail, Indeterminate	
Ornamental Tack #1	1871-1880
Ornamental Tack #3	1877-1895
Plaque #2	
Tack	
Thumbscrew #1	1874 to circa 1920
Thumbscrew #4	1874-1910
Viewing Window Type #1	1850s to circa 1900
Burial 4	**1865 to 1881**
Coffin Screw/Tack #1	1865 to 1881
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack #4	1874-1905
Burial 5	**After 1890**
Internal Fastener	post circa 1890
Nail, Cut	terminus ante quem circa 1905
Nail, Indeterminate	
Burial 6	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Tack	
Burial 7	**Circa 1895 to 1905**
Handle #6	1895
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack #4	1871 to 1905
Outer Box Handle #1	1901 to 1905
Plaque #1	1879 to 1893
Tack	
Thumbscrew #8	1901 to 1905
Viewing Window Type #2	
Burial 8	**1870 to 1905**
Handle #3	1893 to 1905
Nail, Cut	terminus ante quem circa 1905
Ornament #1	1874 to 1901
Screw	

Coffin Hardware by Individual Burial	Summary Dates (Estimated Interment Date in Bold)
Screw, Possible	
Thumbscrew #4	1870-1910
Burial 9	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Burial 10	**1874 to 1905**
Corner Brace #1	circa 1905
Handle #2	1880 to 1920
Thumbscrew #6	1874 to circa 1920
Burial 11	**c. 1881**
Escutcheon #1	1879 to 1881
Handle #4	1875 to 1895
Internal Fastener #1 (Freedman's Type 1)	post 1881 (likely 1888)
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack	circa 1850 to circa 1910
Box Screw #1	1880 to 1881
Screw	
Thumbscrew #7	1880 to 1905
Viewing Window Type #3	
Plaque Type #3	1885 to 1896
Burial 12	**1877 to 1895**
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Screw	
Thumbscrew #5	1877 to 1900
Burial 13	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Burial 14	**1880 to 1905**
Handle #3	1893 to 1905
Nail, Cut	terminus ante quem circa 1905
Nail, Indeterminate	
Ornamental Tack #2	1874
Box Screw #1	1880 to 1881
Plaque or Ornament, Possible	
Screw, Possible	
Thumbscrew #4	1870-1910
Burial 15	**1880 to 1905**
Handle #9	circa 1896
Nail, Indeterminate	
Ornamental Tack Indeterminate Type	circa 1850 to circa 1910
Box Screw #1	1880 to 1881
Thumbscrew #2	1905
Burial 16	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Tack	
Thumbscrew #4	1870-1910

Coffin Hardware by Individual Burial	Summary Dates (Estimated Interment Date in Bold)
Thumbscrew #9	1885 to 1905
Escutcheon #3	1885 to 1905
Burial 17	**1896 to 1905**
Corrugated Fastener	post circa 1896
Handle #5	1880 to 1901
Nail, Cut	terminus ante quem circa 1905
Nail, Indeterminate	
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Box Screw #1	1880 to 1881
Thumbscrew #2	circa 1905
Burial 18	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Burial 19	**After 1880**
Nail, Wire?	post 1890
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Outer Box Screw #1	1880 to 1881
Tack	
Burial 20	**1874 to 1905**
Nail, Cut	terminus ante quem circa 1905
Thumbscrew Indeterminate	1874 to circa 1920
Burial 21	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Nail or Screw, Possible	
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Screw, Possible	
Burial 22	**circa 1875 to circa 1880s**
Handle #7	1875 to 1880
Casket #1	circa 1860 to circa 1880s
Nail, Cut	terminus ante quem circa 1905
Nail, Possible	
Viewing Window indeterminate	
Burial 23	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Burial 24	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Tack	
Handle #8	1895 to 1905
Burial 25	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Tack	

Coffin Hardware by Individual Burial	Summary Dates (Estimated Interment Date in Bold)
Burial 26	**1890 to 1905**
Handle #2	1880 to 1920
Internal Fastener	post circa 1890
Nail, Cut	terminus ante quem circa 1905
Thumbscrew #3	1874 to circa 1920
Burial 27	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Burial 28	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Burial 29	**Prior to 1905**
Nail, Cut?	terminus ante quem circa 1905
Burial 30	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Screw, Possible	
Burial 31	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Burial 32	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Burial 33	**1881 to 1905**
Internal Fastener #1 (Freedman's Type 1)	post 1881 (likely 1888)
Nail, Cut	terminus ante quem circa 1905
Tack	
Burial 34	**Prior to 1905**
Nail, Cut	terminus ante quem circa 1905
Ornamental Tack Indeterminate	circa 1850 to circa 1910
Tack	

APPENDIX H

ESTIMATED INTERMENT DATES

Burial Number	Estimated Interment Dates
Burial 1	Prior to 1905
Burial 2	Prior to 1905
Burial 3	1881 to 1905
Burial 4	1865 to 1881
Burial 5	After 1890
Burial 6	Prior to 1905
Burial 7	1871 to 1905
Burial 8	1893 to 1905
Burial 9	Prior to 1905
Burial 10	1874 to 1910
Burial 11	c. 1881
Burial 12	1877 to 1895
Burial 13	Prior to 1905
Burial 14	1880 to 1905
Burial 15	1880 to 1905
Burial 16	Prior to 1905
Burial 17	1896 to 1905
Burial 18	Prior to 1905
Burial 19	After 1880
Burial 20	1874 to 1905
Burial 21	Prior to 1905
Burial 22	circa 1875 to circa 1880s
Burial 23	Prior to 1905
Burial 24	Prior to 1905
Burial 25	Prior to 1905
Burial 26	1890 to 1905
Burial 27	Prior to 1905
Burial 28	Prior to 1905
Burial 29	Prior to 1905
Burial 30	Prior to 1905
Burial 31	Prior to 1905
Burial 32	Prior to 1905
Burial 33	1881 to 1905
Burial 34	Prior to 1905

APPENDIX I

TERMINOLOGY LIST

Terminology

Age-at-death: Estimation of the age at which the individual died; reported in weeks, moths, or years.

Bioarchaeology: Multi-disciplinary research program integrating human osteology with other data to address a variety of research topics. Such topics include status, health, paleodemography, daily activities, occupation, and migration.

Biological affinity: Geographic ancestry of an individual as determined by distinct skeletal characteristics.

Burial: Human remains, with or without a burial container, placed in the ground after death.

Burial position: The manner in which the body was laid in the grave.

Calculus: Tartar or calcified dental plaque that builds-up on teeth

Caries: Tooth decay or cavities

Casket: Typically a four-sided, rectangular burial container.

Coffin: A hexagonal shaped burial container typically widest at the shoulders. The containers can be six-sided, eight-sided, or four-sided but are all widest at the shoulder. Shapes include hexagonal, tapered, or anthropoid.

Degenerative joint disease: Most commonly known as osteoarthritis. It is associated with degradation of the mass and structure of the bone and cartilage tissue due to aging or biomechanical stress. In osteology or bioarchaeology, the changes observed are typically on bone.

Dentition: teeth

Demography: Study of human population

Developmental defect: Lack of formation or malformation of a skeletal element during fetal growth. This generally refers to genetic disruption

Disinterment permit: Permit obtained from the Texas Vital Statistics Office to exhume human remains.

Entheseal changes: Changes to the bone caused by muscular activity of the tendons and ligaments.

Exhume: To remove a human remains, burial container, hardware, and personal items from the ground.

Hypoplasia: Lines or pits visible in tooth enamel that developed during tooth formation.

Interment: Burial of an individual with or without a burial container.

Lytic lesion: Destruction of an area of bone caused by a disease process.

Macrobotanical remains: Plant remains that can be see with the naked eye.

Mortality schedule: List of individuals who died during a census year. Data is gathered by a specified census area, such as Galveston County. The data gathered only applied to those who died during that census year; for example in the 1860 census only individuals that died in 1860 are included on the mortality schedule.

Mortuary descriptions: List or definition of the elements associated with a burial. Such descriptions include grave shaft size and shape, coffin/casket size and shape, hardware, and personal items.

Outer box: The outer box is a box in which the coffin or casket was placed at the time of burial. The outer box was generally the box was the shipping crate for the coffin or casket.

Paleopathology: The study of diseases, their manifestations on the skeleton, and the prevalence and distribution among past populations.

Personal items: Items belonging to an interred individual as part of their clothing, hair decoration, jewelry, shoes, etc.

Sclerotic bone: Pathologic slow-growing, thickening of the bone.

Schmorl's nodes: Herniation of part of the nucleus pulposis which may cross into the vertebral body. Lesions are formed on the vertebrae after prolonged mechanical action of the herniated nodule.

Sex: Determination of the sex of an individual using differing skeletal elements. In children and juveniles, the skeletal remains are not fully developed resulting in poor estimations or undifferentiated elements.

Stature: Estimated height of an individual from skeletal elements.

Taphonomy: In a historic cemetery, taphonomy is defined as post-burial conditions affecting preservation of the human skeletal remains, burial container, hardware and personal items.

Trauma: An injury or wound to the body caused by a outside source.

Trephination: Process of removing a piece of bone from the skull without removing the underlying brain tissue. Bone is removed through scraping, boring, or cutting.

Vault: Vaults are created by excavating the grave shaft to a depth shallower than the intended grave depth with a niche dug into the center of the grave shaft that is large enough to contain the coffin or casket. This niche created a shelf on which unattached planks of wood were placed perpendicular to the coffin or casket. This type of construction is also termed an arch, coffin board, or vaulted lid.

Viewing window: A pane of glass placed in the lid of a coffin or casket through which the body could be observed.

Wood arch: planks of wood placed over the niche in a vaulted burial. See Vault.

Woven bone: Haphazard organization of collagen fibers. Generally associated with new bone formation.